



**Agricultural Marketing Series No. 127**

**BROCHURE  
ON THE  
MARKETING OF  
GREEN PEAS IN INDIA**

GOVERNMENT OF INDIA  
MINISTRY OF FOOD AND AGRICULTURE  
(DEPARTMENT OF AGRICULTURE)  
DIRECTORATE OF MARKETING AND INSPECTION) NAGPUR.

*Price : Rs. 3·70 or 6s.*

**LIST OF PRICED PUBLICATIONS ISSUED BY THE AGRICULTURAL  
MARKETING ADVISER TO THE GOVT. OF INDIA**

Marketing Series No.	Symbol No.	Name of Publication	Price
			Rs. nP.
1	2	4	
*1	AMA 1	Report on the Marketing of Wheat in India . . . . .	1.25
*2	AMA 2	Report on the Cold Storage and Transport of perishable produce in Delhi . . . . .	0.75
*3	AMA 3	Agricultural Produce (Grading & Marking) Act, 1937, with rules made prior to 1st April, 1947 (Out of print, <i>see</i> AMA 17 below).	
*4	AMA 4	Abridged edition of the Report on the Marketing of Wheat in India (English). . . . .	0.50
*5	AMA 5	Abridged edition of the Report on the Marketing of Wheat in India (Hindi) . . . . .	0.50
*6	AMA 6	Abridged edition of the Report on the Marketing of Wheat in India (Urdu) . . . . .	0.50
*7	AMA 7.37	Annual Report of the Agricultural Marketing Adviser and Summarised Reports of Senior Marketing Officers in Provinces and certain States for the year ending 31st December, 1937 . . . . .	0.37
*8	AMA 8	Report on the Marketing of Linseed in India . . . . .	1.25
*9	AMA 9	Report on the Marketing of Eggs in India and Burma . . . . .	1.25
*10	AMA 10	Report on the Marketing of Tobacco in India and Burma . . . . .	1.25
*11	AMA 12	Abridged edition of the Report on the Marketing of Linseed in India (English) . . . . .	0.75
*12	AMA 17	Agricultural Produce (Grading & Marking) Act, 1937, with rules made prior to 31st August, 1940. . . . .	0.75
*13	AMA 13	Abridged edition of the Report on the Marketing of Linseed in India (Bengali) . . . . .	0.75
*14	AMA 14	Abridged edition of the Report on the Marketing of Linseed in India (Hindi) . . . . .	0.50
*15	AMA 15	Abridged edition of the Report on the Marketing of Linseed in India (Marathi) . . . . .	0.50
*16	AMA 16	Abridged edition of the Report on the Marketing of Linseed in India (Urdu) . . . . .	0.50
*16	AMA 16	Annual Report on the Agricultural Marketing Adviser and Summarised Reports of Senior Marketing Officers in Provinces and certain States for the year ending 31st December, 1938 . . . . .	0.75

(Continued at the end of the Bookmarks)

# BROCHURE ON THE MARKETING OF GREEN PEAS IN INDIA

## PREFACE

Green peas constitute one of the most popular items of cold weather vegetables being delicious as well as nutritious. The demand for green peas has, therefore, been steadily increasing. In recent years this vegetable has received special patronage from the Indian canning industry. The industry, has, however, been handicapped for want of authentic information regarding production and marketing of green peas. Relevant statistics in this regard are not being published by any official or non-official agency. An *ad-hoc* survey was therefore, conducted by this Directorate and information regarding the production and marketing of green peas thus collected, have been presented in this brochure.

The survey was carried out in co-operation with the State Marketing Officers, the State Horticulturists, growers, merchants and processing concerns. I thank them for the assistance rendered.

The Government of India should not be regarded as assuming responsibility for all or any of the material contained in this brochure.

This brochure has been compiled by Shri Beni S. Srivastava, Marketing Officer under the guidance of Shri Partap Singh, Senior Marketing Officer of this Directorate

N P CHATTERJI,

NAGPUR:  
April 29, 1960.

*Agricultural Marketing Adviser  
to the Government of India.*

(i)

## BROCHURE ON THE MARKETING OF GREEN PEAS IN INDIA

### TABLE OF CONTENTS

<b>Preface</b>	1
<b>Introduction</b>	1
I. Supply	1
II. Utilisation	8
III. Prices	10
IV. Preparation for Market	15
V. Processing	17
VI. Assembling, Transportation and Distribution	23
VII. Research and Development	34
VIII. Conclusions and Recommendations	35

### APPENDICES

<b>APPENDIX</b>	
I—Important green pea growing districts in some of the pea growing States of India	36
II—Statewise marketable surplus of green peas in India	38
III—Average monthly wholesale prices of green peas in Delhi for the period 1952-53 to 1956-57	40
IV—Average monthly wholesale prices of green peas in Lucknow for the period 1952-53 to 1956-57	41
V—Average monthly wholesale prices of green peas in Allahabad for the period 1952-53 to 1956-57	42
VI—Average monthly wholesale prices of green peas in Patna for the period 1952-53 to 1956-57	42
VII—Average monthly wholesale prices of green peas in Simla for the period 1953 to 1957	43
VIII—Average monthly wholesale prices of green peas in Calcutta for the period 53 to 1957.	44
IX—Average monthly wholesale prices of green peas in Poona for the period 1952-53 to 1956-57	46
X—Average monthly wholesale prices of green peas in Nasik for the period 1953 to 1957	46
XI—List of important pea canning factories in India	47
<b>Diagrams</b>	2
<b>Plates</b>	9

# BROCHURE ON THE MARKETING OF GREEN PEAS IN INDIA

## INTRODUCTION

Peas are known to be one of the earliest cultivated crop. These are reported to have originated in Ethiopia, South Asia and Mediterranean countries.

In India, peas are extensively grown as a pulse. Peas grown for this purpose are commonly known as field peas (*Pisum arvense*). Green pods from a small proportion of the field peas are also used as vegetable. Apart from this, a special type commonly known as garden peas (*Pisum sativum*) is grown exclusively as a vegetable. Though garden peas were distinguished from field peas as early as 1536 A.D. and were brought into prominence by the experimental work on genetics by Mendel, their use became common only after 1700 A.D. In India, the cultivation of garden peas expanded considerably during World War II mainly to meet the needs of the armed forces for canned peas. The upward trend in cultivation has continued since then. Peas are generally considered to be one of the most delicious and nutritious vegetables. Garden peas are sometimes confused with sweet peas (*Lathyrus odoratum*) which are grown for beauty and fragrance of their flowers.

This brochure deals with green peas of both the types viz., field peas and garden peas, but special attention has been paid to garden peas in view of their increasing demand from the canning industry.

## I—SUPPLY

### (1) ACREAGE AND PRODUCTION

Statistics of acreage and production of vegetables on an All-India basis are not maintained. In order to arrive at estimates of acreage and production of green peas, a questionnaire was issued to the State Marketing Officers and Horticulturists. Personal enquiries were also made from the State Revenue and Agriculture Departments, experienced growers, commission agents and municipal markets. The acreage and production figures were arrived at on the basis of information received and enquiries made from the above mentioned sources. These figures can therefore, be taken only as

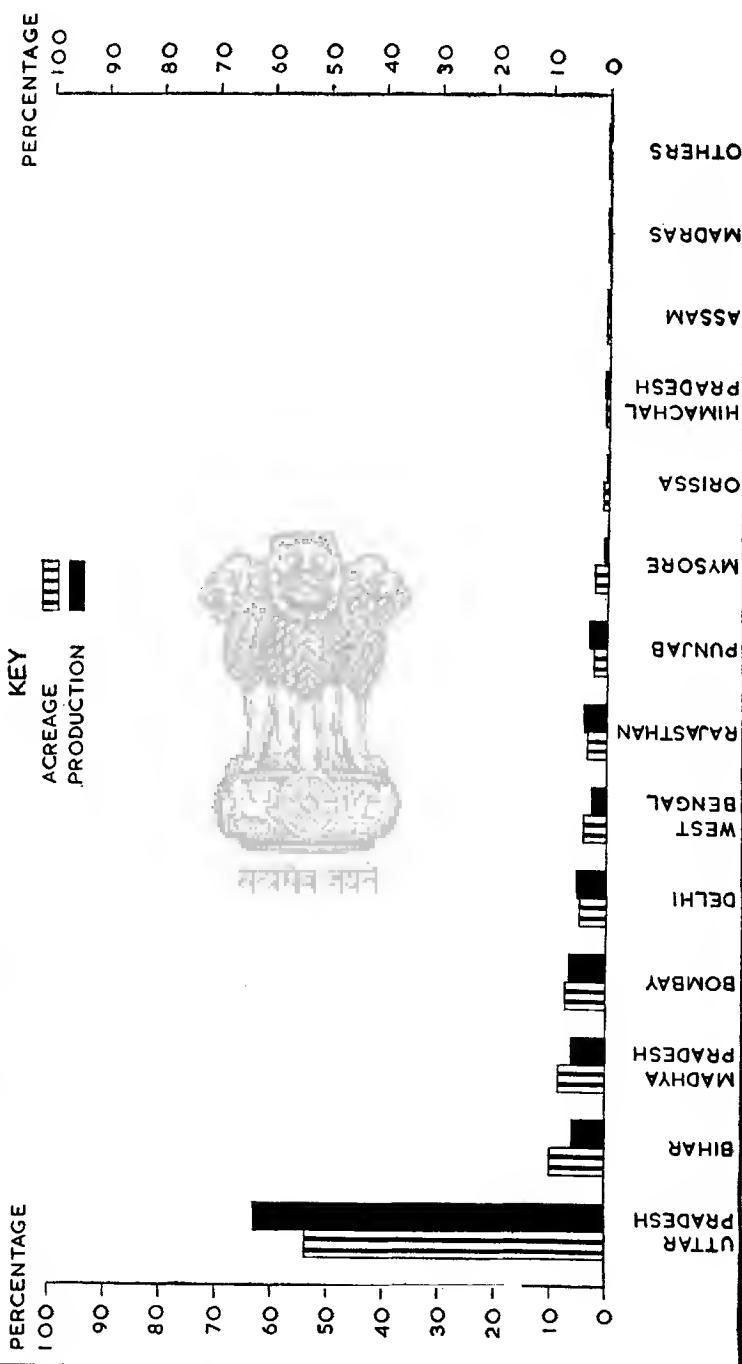
approximations. The estimated figures in respect of different States for 1956-57 are given below in Table No. I and illustrated in the diagram facing this page.

TABLE No. I

*Acreage and production of green peas in different States and Territories of India during 1956-57*

Sl. No.	States/ Territories	Area in acres/ hectares	Percent- age of the total	Average yield per acre (mds.)	Production (mds./ metric tons)	Percent- age of the total
1	2	3	4	5	6	7
1	Uttar Pradesh	88,130 (35,665)	53.9	55.1	48,57,650 (1,81,307)	62.9
2	Bihar	16,267 (6,583)	9.9	29.8	4,84,943 (18,100)	6.3
3	Madhya Pradesh	13,902 (5,626)	8.5	35.0	4,86,570 (18,161)	6.3
4	Bombay	12,082 (4,889)	7.4	43.0	5,19,526 (19,391)	6.7
5	Delhi	8,086 (3,272)	4.9	50.0	4,04,300 (15,090)	5.2
6	West Bengal	6,809 (2,756)	4.2	32.9	2,24,470 (8,378)	2.9
7	Rajasthan	5,987 (2,423)	3.7	54.0	3,23,298 (12,067)	4.2
8	Punjab	4,550 (1,841)	2.8	55.8	2,53,750 (9,471)	3.3
9	Mysore	3,929 (1,590)	2.4	16.0	62,864 (2,346)	0.8
10	Orissa	1,575 (637)	1.0	10.0	15,750 (588)	0.2
11	Himachal Pradesh	900 (364)	0.6	60.0	54,000 (2,015)	0.7
12	Assam	646 (262)	0.4	35.0	22,610 (844)	0.3
13	Madras	207 (84)	0.1	40.0	8,280 (309)	0.1

PERCENTAGE OF ACREAGE AND PRODUCTION OF GREEN PEAS IN DIFFERENT STATES AND TERRITORIES OF INDIA DURING 1956-57.



## DISTRIBUTION OF CONSUMER'S RUPEE FOR GREEN PEAS

### KEY

- 1 RETAILER'S MARGIN
- 2 WHOLESALER'S MARGIN
- 3 TRANSPORT CHARGES
- 4 COMMISSION
- 5 OTHER CHARGES
- 6 PRODUCER'S SHARE

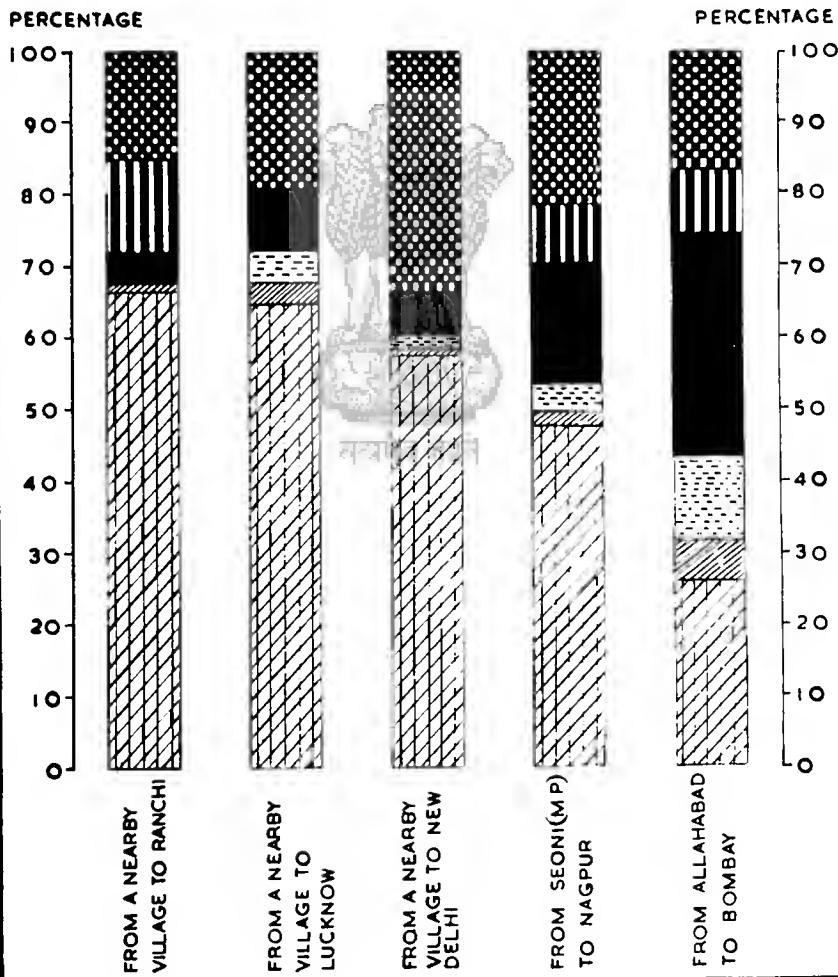


TABLE NO. I—(Contd.)

1	2	3	4	5	6	7
14	Kerala . . .	114 (46)	Neg.	10.0	1,140 (43)	Neg.
15	Others*	300 (121)	0.2	33.3	10,000 (373)	0.1
	TOTAL . . .	1,63,484 (66,159)	100.0	47.3 mds. or 4.36 metric tons per hectare on an average.	77,29,151 (2,88,483)	100.0

\*Exclusive of figures for Jammu and Kashmir as these were not available.

N.B.—Figures in brackets are in hectares/metric tons.

From the figures given above, it will be seen that Uttar Pradesh contributed over 50% of the total acreage and 60% of the total production. It may also be noted that the production in the Southern States, Orissa and Assam was insignificant. Peas are grown in winter but in the Southern States there is no real winter. The production in those States is, therefore, negligible and is confined mostly to places at higher altitudes. The production in Delhi, a small Union territory, can be considered to be outstanding. This may be attributed to the heavy demand in the city of Delhi. The areas of concentrated production in different States and Union territories are given in Appendix I.

The total production is estimated to be over 7,729 thousand maunds or 288 thousand metric tons. It compares favourably with the production in some other countries of the world, figures for which are set out below:—

TABLE No. II

Production of green peas in some of the important producing countries of the world

Sl. No.	Name of the country	Production in mds.	Production in metric tons
1	2	3	4
1	U.S.A.* . . . . .	1,28,75,294	4,80,565
2	United Kingdom . . . . .	44,78,056	1,67,142
3	France . . . . .	37,04,128	1,38,255

\*Agricultural Statistics published by U.S. Department of Agriculture, Washington, 1955.

TABLE No. II.—(Contd.)

1	2	3	4
4 Italy . . . . .		35,02,357	1,30,750
5 Canada+ . . . . .		17,77,656	66,350
6 Australia† . . . . .		8,46,747	31,604
7 Denmark . . . . .		2,27,306	8,484
8 Union of South Africa‡ . . . . .		1,27,000	4,724

Sources:—‘Marketing of Fruit and Vegetables in Europe’ published by the European Productivity Agency of the Organisation for European Economic Co-operation, Paris, 1956.

+ Information supplied by the Canadian Embassy of India (1957).

† Year Book of the Commonwealth of Australia for 1953.

‡ Year Book of the Union of South Africa for 1956-57.

### (2) TREND OF PRODUCTION

An attempt was made to collect figures of production for a few years but it has not been possible to obtain year-to-year figures and hence it is difficult to estimate accurately the trend of acreage and production. However, it can safely be said that to meet the increasing demand for green peas, production has also been going up.

### (3) SEED RATE, YIELD PER ACRE AND SOWING AND HARVESTING SEASONS

The seed rate is reported to vary from 15 to 20 seers per acre or 34.6 to 46.1 kg. per hectare. The crop is ready in a period of 2 to 4 months according to the variety. The yield varies from 10 to 60 mds. per acre or 0.92 to 5.53 metric tons per hectare depending upon climatic conditions, soil, manuring, irrigation, variety and freedom from pests and diseases. On the basis of figures given in Table I the estimated yield per acre for India as a whole works out to 47 mds. per acre or 4.36 metric tons per hectare.

Green peas require a mild cold climate for proper growth. The sowing and harvesting seasons for different tracts in India are indicated in the following table:—

TABLE No. III

Normal sowing and harvesting seasons for green peas in India

Sl. No.	States/ Territories	Sowing seasons		Harvesting seasons	
		Plains	Hills	Plains	Hills
1	2	3	4	5	6
1	Uttar Pradesh	Oct-Nov.	i. March-May ii. June-Aug. iii. Oct-Nov.	Dec-March	i. June-Aug. ii. Sept-Nov. iii. March-May

TABLE No. III.—(Contd)

1	2	3	4	5	6
2	Bihar	Oct-Nov.	July-Aug.	Dec-March	Nov-Jan.
3	Madhya Pradesh	Oct-Nov.	..	Dec-March	..
4	Bombay	i. June-July ii. Oct-Nov.	..	i. Aug-Oct. ii. Dec-March	..
5	Delhi	Oct-Nov.	..	Dec-March	..
6	West Bengal	Oct-Nov.	i. March-May ii. June-Sept. iii. Oct-Nov.	Dec-March	i. June-Aug. ii. Sept-Dec. iii. March-May
7	Rajasthan	Oct-Nov.	..	Dec-March	..
8	Punjab	Oct-Nov.	i. March-May ii. June-Aug. iii. Oct-Nov.	Dec-March	i. June-Aug. ii. Sept-Nov. iii. March-May
9	Mysore	April-Oct.	..	July-Jan.	..
10	Orissa	Sept.-Oct.	..	Dec-Jan.	..
11	Himachal Pradesh	..	i. March-May ii. June-Aug. iii. Oct-Nov.	..	i. June-Aug. ii. Sept-Nov. iii. March-May
12	Assam	Oct-Nov.	i. Jan-March ii. Sept-Oct.	Jan-March	i. May-June ii. Jan-May
13	Madras	..	i. March-April ii. Aug-Sept. iii. Nov-Dec.	..	i. June-Aug. ii. Nov-Dec. iii. Feb-March
14	Kerala	Sept-Nov.	..	Dec-March	..

It will be observed that the sowing season in the plains is October to November but in Bombay, another crop is sown in June-July, while in Mysore, the season extends from April to October. In hills the sowing season varies according to climatic conditions and generally speaking more than one crop is raised. The main harvesting season in the plains is from December to March, while the bulk of the hill crop comes to the market from March to November. The crops in the plains and hills, therefore, are supplementary to each other making green peas available almost all the year round.

#### (4) VARIETIES

Garden peas are broadly classified under two groups on the basis of difference in their seed surface *viz.*, smooth-seeded and wrinkled-seeded. The smooth-seeded varieties are mostly early as they are hardier, germinated better and are more resistant to fungus diseases

which sometimes take a heavy toll. The wrinkle-seeded peas are preferred for the main crop as they can be sown a little later also. They are sweeter, have better flavour and bigger pods and, therefore, fetch a premium in the market. These are preferred for purposes of canning also.

Brief descriptions of some important commercial varieties are given below:—

(a) Garden Peas :

(i) *Lincoln or Greenfeast (Darantia Kaip)*.—It is an English late variety mostly grown in North India. The pods are dark green, sickle-shaped and are ready in 100 days. The plants are dwarf to medium tall and single-podded usually. Seeds are wrinkled and rather small. (See plate No. 1 facing this page.)

(ii) *Little Marvel*.—It is an early dwarf variety producing medium-sized, thick, very well-filled pods. The peas are sweet and the shelled yield is high. The seeds are wrinkled. (See plate No. 2 facing this page.)

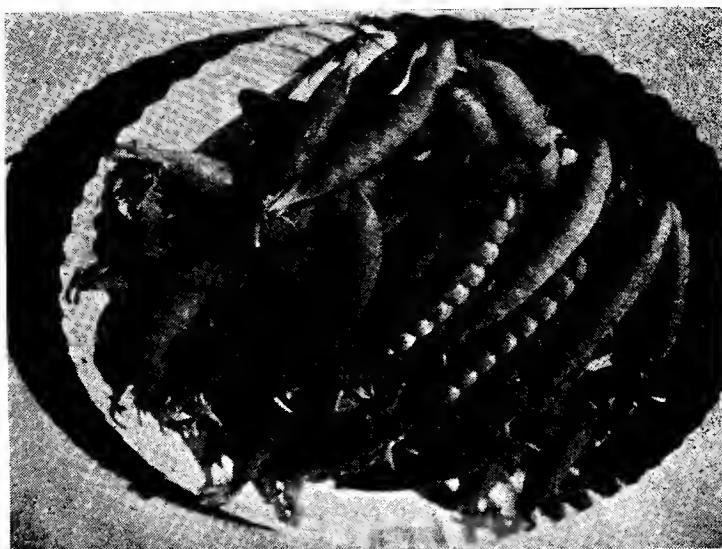
(iii) *Kanawari or Simla*.—It is mostly grown in the Simla hills and also in Ambala (Punjab) and Nainital (U.P.). The seeds are smooth and white. The plants are rather tall, the pods are of good size and are usually borne singly. (See plate No. 3 facing page 7).

(iv) *Darjeeling*.—This variety is cultivated mainly in the Darjeeling hills and Sikkim. The seeds are smooth and light brownish in colour. The pods are borne mostly in pairs with 7 to 9 bold peas each.

(v) *Telegraph*.—It is a tall, greenish, wrinkle-seeded variety. The pods are borne mostly in pairs, and hold 6 to 8 bold sweet peas each. This variety is generally cultivated in the plains of West Bengal.

(vi) *N. P. 29*.—It is a wrinkle-seeded variety released by the Indian Agricultural Research Institute. It is a self-staking, late-fruiting type, producing double pods. The variety is sweet. The shell-out percentage is reported to be very high, being nearly 50. (See plate No. 4 facing page 7.)

(vii) *Early Badger*.—It is a foreign variety introduced from America and is specially suited for sowing in early October when the weather cools down a little. It is a dwarf, wrinkle-seeded variety which gets ready for the first picking in 60 to 65 days after sowing. The pods are borne mostly singly. Well filled pods, boldness of seed and sweetness of the green peas are its special merits. It gives out a shell percentage of 40. (See plate No. 5 facing page 8.)



**Lincoln or Greenfeast (Darantia Kaip).**



**Little Marvel.**

*Facing page 7*



*Kanawari or Simla.*



*N. P. 29.*

(viii) *Lucknow Boniya*.—It is a dwarf, white, smooth-seeded variety producing short pods usually singly, commonly grown around Lucknow (U.P.). It is suitable for early sowing. (See plate No. 5).

(b) Field Peas :

*Desi*.—It is a white, smooth-seeded, tall-growing type, producing small to medium sized yellowish green pods. It is a late type and is grown for dual purpose—for grain as well as for the green pods, but mostly as a field crop. (See plate No. 6 facing page 8).

Besides the varieties described above, some new varieties are becoming popular. The varieties grown in the plains and the hills of different States in India are given below:

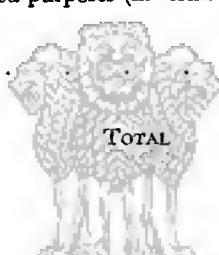
. TABLE No. IV .  
*Varieties of green peas grown in India*

Sl. No.	States/ Territories	Varieties grown in the plains	Varieties grown in the hills
1	Uttar Pradesh	T. 19, N.P. 29, Telephone, Lincoln (Darantia Kaip), Early Badger, American Wonder, Marrowfat, Lucknow Boniya, T. 163 and Desi.	Telephone, N.P. 29, Lincoln, Marrowfat Simla, T. 163 and Desi.
2	Bihar . . .	Desi, N.P. 29 and Patna.	Ranchi, Telephone and Desi.
3	Madhya Pradesh .	Khaperkheda, N.P. 29, Indore Wrinkled and Desi.	..
4	Bombay. . .	Wai, Poona Local and Desi.	..
5	Delhi . . .	Lincoln (Darantia Kaip), Little Marvel, Early Badger and Desi.	..
6	West Bengal . .	Telegraph, Marrowfat and Desi,	Darjeeling and Alderman.
7	Rajasthan . .	N.P. 29 and Desi.	..
8	Punjab . . .	Lincoln, Little Marvel, Hara Bauna, Simla, Lucknow Bonia and Desi.	Simla, Lincoln and Desi.
9	Mysore . . .	Bangalore Local and Telephone.	..
10	Orissa . . .	Desi, Sutton and Patna . . .	..
11	Himachal Pradesh . .	..	Simla and Desi.
12	Assam . . .	Desi.	Darjeeling & Desi.
13	Madras . . .	..	Radio, Marrowfat and Desi.
14	Kerala . . .	Desi.	..

Since peas are cultivated extensively in Uttar Pradesh, it is but natural that the number of varieties grown there is larger than in any other tract.

### (5) MARKETABLE SURPLUS

It is estimated that 80% of the total production of green peas in India is available for the market. This figure is based on the estimates in respect of different tracts in India given in Appendix II and summarized below :—

	Quantity (maunds)	Percentag
1. Village consumption . . . . .	6,58,672 (24,584)	8.5
2. Quantity retained for seed purposes (in terms of pods)	5,71,049 (21,314)	7.4
3. Wastage . . . . .	3,00,120 (11,202)	3.9
 TOTAL	 15,29,841 (57,100) or 15,30,000 (57,100)	 19.8 or 20.0

N.B.—Figures in brackets are in metric tons.

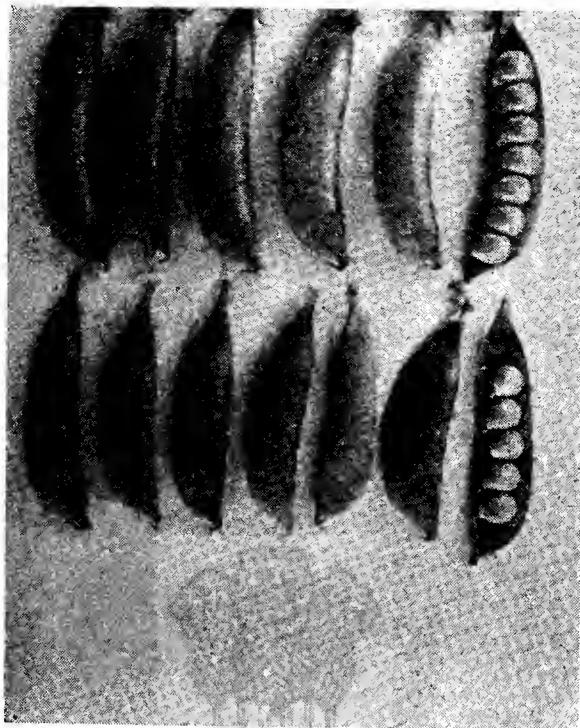
The estimated marketable surplus, therefore, amounts to 61,99,310 mds. or 2,31,383 metric tons and is approximately valued at Rs. 4,95,94,480.

### (6) IMPORTS AND EXPORTS

Green peas are neither imported from foreign countries nor exported. It has however, been reported that some ships calling at some of the Indian ports particularly Calcutta and Bombay take small quantities of green peas estimated at about 100 maunds per annum. This however, cannot be classified as exports.

## II—UTILISATION

As stated earlier green peas are used as vegetable and are considered to be very delicious and nutritious. In the rural areas particularly in the Eastern and Central districts of Uttar Pradesh, Bihar and Madhya Pradesh, the green pods are either boiled in water or



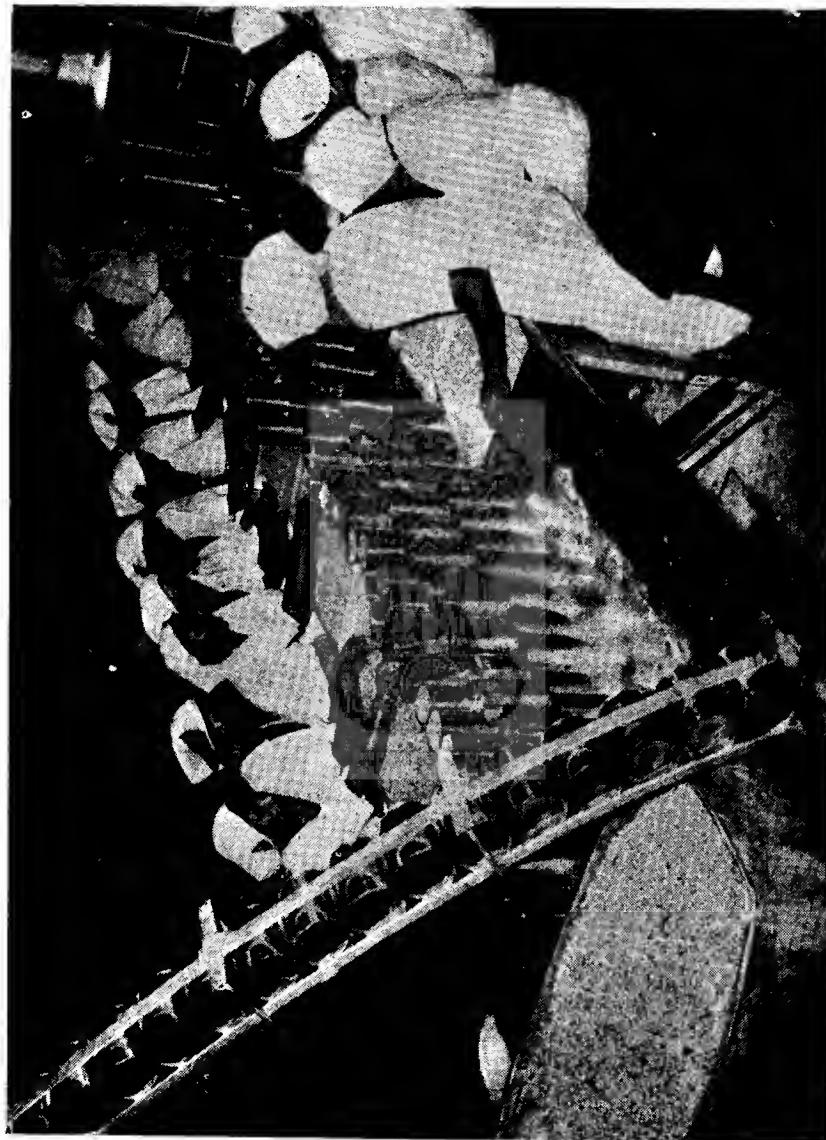
**Early Badger (Top row).**

**Lucknow Boniya (Bottom row).**



**Desi.**

*Facing page 9.*



Sorting and filling of shelled green peas in cans in a canning factory.

roasted in fire and consumed after seasoning. Sometimes this forms a staple diet for the poorer classes. The green plants and the straw are extensively used as fodder.

Green peas are used as vegetable by and large in the fresh state. Very small quantities are, however, used for processing. e.g., canning, sun drying or dehydration. The processing of green peas has been discussed in a separate section.

The extent of consumption of green peas in some districts and centres is indicated in the following table :—

TABLE No. V

*Net available supplies and per capita consumption of green peas in certain selected districts and centres during 1956-57*

Districts/ Centres	Produc- tion (mds.)	Imports (mds.)	Exports (mds.)	Reten- tion for seed in terms of pods (mds.)	Wast- age (mds.)	Net* avail- able sup- ply for consump- tion (mds.)	Popu- lation 1951 (in 1000)	Annual per capita consump- tion (kgs.)
1	2	3	4	5	6	7	8	9
1. Delhi	404,300 (15,090)	52,000 (1,941)	86,500 (3,229)	28,301 (1,056)	12,129 (453)	329,370 (12,293)	1,744	7.05
2. Lucknow	247,500 (9,238)	300 (11)	38,500 (1,437)	15,593 (582)	9,900 (370)	183,807 (6,860)	1,128	6.08
3. Calcutta†	...	210,000 (7,838)	500 (19)	..	..	209,500 (7,819)	2,549	3.06
4. Allahabad	192,500 (7,185)	200 (7)	28,300 (1,056)	12,128 (453)	7,700 (287)	144,572 (5,396)	2,048	2.64
5. Bombay†	...	180,000 (6,718)	750 (28)	..	..	179,250 (6,690)	2,840	2.55
6. Poona	119,153 (4,447)	250 (9)	64,957 (2,424)	9,651 (360)	3,575 (133)	41,220 (1,539)	1,951	0.79
7. Nasik	79,808 (2,979)	Neg.	43,508 (1,624)	6,464 (241)	2,394 (89)	27,442 (1,025)	1,430	0.72

\*Net available supply-(Production+Imports) — (Exports + Retention for seed and wastage).

†Figures relate to the city only.

Figures in brackets are in metric tons.

TABLE NO. V.—(Concl'd.)

	1	2	3	4	5	6	7	8	9
8. Patna	.	46,835 (1,748)	1,000 (37)	Neg.	5,480 (205)	1,873 (70)	40,482 (1,510)	2,528	0.60
9. Gaya	.	53,650 (2,002)	600 (22)	200 (7)	6,277 (234)	2,146 (80)	45,627 (1,703)	3,070	0.55
10. Nagpur	.	10,750 (401)	8,700 (325)	3,500 (131)	871 (33)	322 (12)	14,757 (550)	1,235	0.45

Figures in brackets are in metric tons.

**NOTE.**—Figures of production relate to the districts concerned, while those of imports and exports denote arrivals at district headquarters and despatches from district headquarters to places outside the respective districts.

It will be observed from the above table that in some centres, the rate of *per capita* consumption of green peas is appreciably high as compared to others. This may be indicative of possibilities of developing utilization in some of the other districts and centres also.

### III—PRICES

Price-study of a crop like green peas as also most other vegetable crops, is rendered difficult on account of the paucity of reliable data. There are no regulated markets for vegetables barring two *viz.*, Ahmedabad and Surat which could give authentic data regarding prevailing market prices. Reliance had, therefore, to be placed mainly on the information collected from the records of some wholesalers and commission agents. For Delhi, however, the prices of green peas are maintained by the Bureau of Economics and Statistics, Delhi State and for Calcutta the prices are published by the Agriculture Directorate of the West Bengal Government.

#### (1) SEASONAL VARIATIONS

Wholesale prices of green peas show great variations from time to time during the season. At the commencement of the season, the prices rule high, but as the season advances and the arrivals increase, they register a sharp fall. They again show an upward trend towards the end of the season. During summer months hill peas fetch higher prices on account of limited supplies. The average monthly wholesale prices of green peas in some of the important assembling and consuming markets, *viz.*, Delhi, Lucknow, Allahabad, Patna, Simla, Calcutta, Poona and Nasik for the quinquennium ending 1956-57 are given in Appendices III to X and summarised in the following table.

TABLE No. VI  
*Average monthly wholesale prices of green peas in some of the important assembling and consuming markets (1952-53 to 1956-57)*  
(Rupees per maund or 37.324 Kilograms)

	Delhi	Lucknow	Allahabad	Patna	Simla	Calcutta	Poona Nasik			
							Desi	Simla*	Desi	Desi*
							jeeling			
November	..	54.96	..	38.50	..	38.60	..	31.10	28.50	..
December	19.12	34.14	..	12.75	19.65	..	13.75	20.90	15.12	19.95
January	14.25	22.22	..	6.35	13.55	..	6.60	14.25	8.25	15.00
February	7.92	12.82	..	4.00	6.50	..	4.15	6.90	5.12	..
March	9.70	14.96	..	7.70	10.30	..	7.50	10.35	8.50	..
April	..	24.54	..	..	N.A.	..	..	N.A.	..	..
May	..	33.27	..	37.70	..	..	..	25.60	..	..
June	..	39.35	..	41.75	..	..	..	30.60	..	..
July	..	61.17	..	45.50	..	..	..	46.75	..	..
August	..	66.91	..	43.15	..	..	..	51.05	..	..
September	..	48.05	..	42.20	..	..	..	42.80	..	..
October	..	58.24	..	44.45	..	..	..	36.10	..	..

\*Based on figures for the Calendar years 1953 to 1957.

It will be observed from the figures given above that the prices of Desi/English types of green peas were the highest during November-January in the markets of Delhi, Lucknow, Allahabad, Patna, Calcutta and Poona as it was the commencement of the season and only small quantities of green peas arrived in the markets. Thereafter, the prices fell reaching the minimum in February when supplies arrived in large quantities. The prices again rose in March when it was almost the end of the season and arrivals in the markets were again low. The same trend is observed in the case of Bihar and U. P. peas in the terminal market of Calcutta. The price of Ranchi peas in the Patna market was the lowest in January though the season for these peas was at its end. This was due to the plentiful supplies of green peas from the neighbouring State of Uttar Pradesh.

In Nasik, green peas are grown in *Kharif* and in Poona a second crop is gathered during this season. In the case of this crop also, the prices fell considerably during the peak of the season. In the case of hill peas, *viz.*, Simla peas in Delhi, Simla and Calcutta markets; Nainital peas in Lucknow market and Darjeeling peas in Calcutta market, this principle however, does not hold good as prices are governed by the demand from the plains. Though, for hill peas July and August are generally the peak months of production, the prices are also the highest during that period. This is mainly attributed to the fact that during July and August there is a general scarcity of vegetables in the plains and the prices of green peas brought from the hills, where production is rather small, rule high in sympathy with the prices of other vegetables.

#### (2) PRICE DIFFERENCES IN RESPECT OF VARIETIES

The different varieties of green peas are generally known in the trade after the places where they are grown or from where they are imported. Although it is difficult to give a correct picture of the differences in the prices of various varieties in the absence of grading or standardisation, figures given in the following table in respect of Calcutta market for the quinquennium ending 1956-57 will throw some light on the subject.

TABLE No. VII

*Average monthly wholesale prices of different varieties of green peas in Calcutta during the period 1952-53 to 1956-57  
(Rupees per maund or 37.324 Kilograms)*

Sl. No.	Months	.	.	.	.	.	Varieties		
							Desi local	Bihar peas	U.P. peas
1	January	.	.	.	.	.	9.74	14.02	19.61
2	February	.	.	.	.	.	9.07	10.50	18.52
3	March	.	.	.	.	.	10.29	14.00	21.86

The marketing season of the three varieties for which prices are given in the above table is almost the same. The differences in prices are, therefore, mainly due to varietal differences. It will be observed that out of the three varieties the Desi local fetched the lowest price while U. P. peas got the highest price.

### (3) TREND OF PRICES

In the absence of adequate statistics of prices over a number of years, it is difficult to follow the trend of wholesale prices of green peas. Moreover, for proper comparison, it is essential that the quality should be of the same standard throughout the period for which prices are quoted.

The absence of proper grading in the case of green peas, therefore, makes the task of interpreting the available data difficult. However, the annual average wholesale prices of green peas in some of the important markets for a few years are set out in the table below to give some idea about the trends.

TABLE No. VIII

*Average annual wholesale prices of green peas in some important markets*

(Rupees per maund or 37.324 Kilograms)

Sl. No.	Market	Variety	Years				
			1952- 53	1953- 54	1954- 55	1955- 56	1956- 57
1	2	3	4	5	6	7	8
1	Delhi . .	i. Desi .	14.48	11.62	11.52	12.59	13.53
		ii. English .	30.99	24.24	27.52	27.56	28.79
		iii. Simla* .	55.76	49.57	36.14	43.66	51.67
2	Lucknow . .	i. Desi .	7.94	7.50	9.06	7.13	6.88
		ii. English .	18.15	17.60	19.85	16.95	15.95
		iii. Nainital* .	42.58	42.54	42.83	42.67	41.67
3	Allahabad . .	i. Desi .	8.56	7.81	9.19	7.75	6.69
		ii. English .	18.90	17.85	20.70	17.10	16.45
4	Patna . .	i. Desi .	9.19	9.50	9.94	9.19	8.43
		ii. Ranchi .	22.50	22.08	22.00	22.83	20.67
5	Simla . .	i. Simla* .	37.29	37.75	39.25	36.50	35.57

TABLE No. VIII.—(Contd.)

1	2	3	4	5	6	7	8
6	Calcutta	i. Desi*.	9.90	8.05	9.56	10.28	10.72
		ii. Bihar	23.97	19.22	19.43	19.33	22.47
		iii. U.P.*	26.25	N.A.	18.19	18.75	16.80
		iv. Darjeeling*	50.80	40.02	35.23	43.74	42.50
		v. Simla*	75.73	70.00	61.92	60.92	73.75
7	Poona	Desi	34.70	23.10	26.21	32.75	33.62
8	Nasik	Desi*	33.37	30.50	34.67	37.75	41.12

\*Based on figures for the Calendar years 1953 to 1957.

It will be observed from the data given above that the prices of Desi, English and Simla types of peas in the Delhi market were the highest in 1952-53. Subsequently the prices followed a downward trend and were the lowest in 1954-55 for Desi and Simla peas and in 1953-54 for English peas. Thereafter the prices went up. The prices of different varieties of peas in the Lucknow, Allahabad, and Patna markets showed a downward trend during the period except during 1954-55 when the prices of Desi and English type peas went up because of low production due to unfavourable weather conditions. The prices in Simla market showed an upward trend up to 1954-55 and thereafter the prices gradually went down. In Calcutta the prices of Bihar and Simla peas followed more or less the same trend as in Delhi. However, the prices of U. P. and Darjeeling peas on the whole have shown a downward trend. The price of Desi peas declined in 1953-54 and thereafter it continued to rise and was the highest in 1956-57.

In the Poona and Nasik markets the trend in the prices of Desi peas has been upward since 1954-55. This is mainly due to the fact that production has not kept pace with increasing demand.

#### (4) MARKET INTELLIGENCE

Information regarding arrivals, despatches and prices prevailing in different markets is very essential for efficient marketing of agricultural produce. But unfortunately arrivals, despatches and prices of green peas as of other vegetables are seldom recorded in any wholesale market. The producers are grossly ignorant about market information, so much so that many of them do not even know the names of alternate markets where they could sell their produce to their best advantage. The middlemen and merchants take advantage of their ignorance and exploit them.

It is, therefore, desirable that arrivals, despatches and prices are collected from important wholesale markets by the State Marketing Departments and disseminated through radio, newspapers, etc.

#### IV—PREPARATION FOR MARKET

##### (1) HARVESTING

Green pea pods are normally picked when they are well filled and are changing colour from dark to light green. However, in the beginning of the harvesting season picking of slightly under-developed pods is also done to take advantage of the lucrative prices prevailing at that stage. Conversely picking is somewhat delayed during the peak harvesting season to lessen the depressing effect of glut on prices. However, delayed pickings produce starchy peas dull in colour and appearance. The number of pickings varies from 3 to 5. Pods have to be picked gently to avoid injury to the plant. The cost of picking per maund is usually Re. 0.75 to Re. 1.00.

Sometimes, when there is shortage of fodder, the pea vines are uprooted and the pods are removed by hand and the vines are used as fodder.

Harvesting of peas in some foreign countries is done by means of pea viners and is, generally, undertaken when the largest number of pods reach the stage of maturity. Mechanised harvesting involves considerable wastage but it is advantageous where labour costs for harvesting are high. In India there is no need to follow mechanised harvesting as there is no dearth of labour for picking. Moreover, picking more than once, increases the average yield.

As soon as green peas are harvested, they are put in bags or sometimes carried loose in baskets or in cloth to the nearest assembling market. Harvested green peas are liable to deteriorate rapidly and hence should be sent to the market without any delay.

##### (2) PACKING FOR MARKET

Green peas are generally packed in gunny bags owing to their easy availability and convenience. Only second hand gunny bags are used. A standard-size gunny bag would contain about 50 seers of green peas. The cost of a second-hand gunny bag varies from 0.50 nP. to 0.75 nP. Generally the bags are returnable.

Baskets are also used for packing green peas particularly when these are to be transported over long distances and during summer months. Different types of baskets are used for packing peas. The net content of a basket varies between 30 and 50 seers. These baskets are made of bamboo strips, or twigs of *arhar* or *mulberry* according to local availability of the material. No padding material is used in the baskets. Generally deep baskets are avoided as there

are chances of the contents being heated up, if there is delay in transport. Baskets of peas do not have a lid but are covered with a piece of hessian cloth which is sewn round the periphery. The *arhar*-twig baskets used in Varanasi and Allahabad are strong and sturdy. The bamboo baskets used in Bangalore are rather weak but those used in Dehra Dun are fairly strong, light and easy to handle with sufficient scope for aeration. Dehra Dun baskets are, therefore, more suited for packing green peas.

Certain observations were carried out by this Directorate to assess the suitability of gunny bags and baskets for packing green peas.

Gunny bags and baskets of green peas received in Calcutta from three different centres, *viz.*, Darjeeling, Varanasi and Dehra Dun were inspected and the results of these studies are given below :

TABLE No. IX

*Statement showing the extent of damage sustained by green peas sent in gunny bags and baskets from some of the producing centres to Calcutta*

Sl. No.	Date of inspection	Despatched from	No. of packages inspected	Type of package	Net quantity (lbs.)	Mode of transport	Distance covered (miles)	Qty. damaged (lbs.)	Damage percentage	Remarks	
										1	2
1	2	3	4	5	6	7	8	9	10	11	12
1	4-1-1958	Darjeeling	3	Rectangular gunny bags.	283 (128.4)	By Lorry & by rail	408	54 (24.5)	18.4		
2	4-1-1958	Darjeeling	3	Wedge shaped bamboo strips basket with a piece of gunny for covering the top.	246 (111.6)	By lorry & rail.	408	12 (5.4)	4.9		
3	31-1-1958	Varanasi	4	Rectangular gunny bag.	491.5 (222.9)	By rail.	424	nil.	nil.	Though there was no damage apparently, the quality was much deteriorated.	

TABLE No. IX.—(Contd.)

1	2	3	4	5	6	7	8	9	10	11
4	31-1-1958	Dehra Dun	4	Oval <i>ar-har</i> twigs basket with an opening at the top and a lid.	492 (223.2)	By rail.	424	nil.	nil.	
5	31-3-1958	Dehra Dun	6	Conical bamboo-strip basket with a piece of gunny for covering the top.	366 (166)	By rail.	965	nil.	nil.	

N.B.—Figures in brackets are in Kilograms.

It will be noticed that green peas received in gunny bags from Darjeeling were found to be more damaged than those received in bamboo-strip baskets. The green peas received from Varanasi in gunny bags were found to have deteriorated in quality while those received in baskets had kept better. From Dehra Dun green peas were received in bamboo baskets over a distance of nearly 1,000 miles by rail without any apparent damage. Similar studies were made at other centres like Bombay and Delhi and the general conclusion has been that in summer months and for long-distances baskets are preferable to gunny bags. However, packing in gunny bags is considered to be satisfactory when green peas are to be transported over short distances by rail or road transport. Packing in gunny bags is convenient and cheap. Also bags are readily available in the market. It has also been observed that mesh bags are more suitable than the double woven bags which are used for sugar and grain. The reason is obvious; mesh bags provide better aeration to the contents.

## V—PROCESSING

Green peas may be processed in various ways. They may be sun-dried, mechanically dehydrated, canned or frozen. Sun drying of green peas is being done at present in Etawah district (U.P.) on a small scale. The product is generally sold to canners. The advantage to the canners is that the material for canning is available all the year round.

Dehydration of green peas has not been undertaken on a commercial scale in India as yet. However, recently dehydration of green peas on a pilot scale has been started by a firm at Ghaziabad, (U.P.).

Canning of green peas in India commenced during the Second World War and has continued to develop steadily since then. It is done in brine as well as in the form of a curry. The production figures for 1956 and 1957 for different States in India based on the reports of the manufacturers received in this Directorate are given below :

TABLE No. X  
*Estimated production of canned peas in India*

S. No.	State	Year 1956			Year 1957		
		Quantity (lbs.)	(Metric tons)	Value (Rs.)	Quantity (lbs.)	(Metric tons)	Value (Rs.)
<i>(a) Green peas in brine</i>							
1	Uttar Pradesh	5,70,421	258.74	4,13,140	11,46,829	520.19	8,55,565
2	Bombay.	9,49,808	430.82	5,67,906	5,21,544	236.56	3,90,476
3	Delhi .	4,19,734	190.38	2,54,007	3,76,242	170.65	20,238
4	West Bengal	37,004	16.78	25,740	28,568	12.95	18,279
5	Madras	1,310	0.59	1,142	905	0.41	771
	<b>TOTAL</b>	<b>19,78,277</b>	<b>897.31</b>	<b>12,61,935</b>	<b>20,74,088</b>	<b>940.76</b>	<b>14,85,329</b>
<i>(b) Curried green peas</i>							
1	Uttar Pradesh	1,42,512	64.64	1,41,950	1,13,760	51.60	1,11,684
2	West Bengal.	58,146	26.37	56,544	86,674	39.31	83,062
3	Bombay	3,612	1.63	5,418	61,900	28.07	67,205
	<b>TOTAL</b>	<b>2,04,270</b>	<b>92.64</b>	<b>2,03,912</b>	<b>2,62,334</b>	<b>118.98</b>	<b>2,61,951</b>
	<b>GRAND TOTAL</b>	<b>2,182,547</b>	<b>989.95</b>	<b>14,65,847</b>	<b>2,336,422</b>	<b>1,059.74</b>	<b>1,747,280</b>

It will be seen that the total estimated production of canned green peas in India was about 22 lakh lbs., (990 M. tons) in 1956 and 23 lakh lbs. (1060 M. tons) in 1957. On this basis, it is estimated that the requirement of fresh green peas by canners would be about 48,000 Mds. (1770 M. tons). This represents about 1 per cent of the total production. Canning is mostly done in Uttar Pradesh which happens to be the biggest producer of green peas. Maharashtra comes next although the production of green peas in that State is not very high. This is due to the fact that a number of important

canning factories are located in the State and they have taken up the canning of green peas also.

The Army is the largest bulk purchaser of canned peas. However, the civilian demand has also been on the increase. In many parts of the country where fresh green peas are not available, the use of canned green peas is becoming more and more popular. Even in areas where green peas are available during winter but are not available in summer, the demand for canned peas during the latter season is also gaining ground and is likely to grow because the prices at which canned green peas are now being offered are fairly attractive.

The average retail prices of certain brands of canned peas during 1958-59 varied from Rs. 1.37 nP. to Rs. 2.00 for a can of A2½ size and from Re. 0.75 to Rs. 1.25 nP. for a 1 lb. tall can. Under the Fruit Products Order, the drained weight of the canned peas shall not be less than 55 per cent of the net weight of the contents. On this basis, the prices of canned peas compare favourably with those of fresh green peas sold during summer months. With the growing demand for canned green peas, more and more manufacturers are taking to the canning of green peas. A list of the important pea canning factories in India is given in Appendix XI.

Green peas are frozen extensively in the U.S.A., the United Kingdom and some other foreign countries but this type of processing has not yet been started on a commercial scale in India. Recently some trials on an experimental basis have been made by a firm in Bombay and response from big hotels and establishment has been found to be encouraging. It is understood that the firm now intends to increase its production for commercial purposes. However, there are considerable difficulties in the marketing of frozen peas in the country as a whole because there are no freezer dispensers to take care of the product upto the retail end. The technique of freezing involves continuous preservation under suitable storage conditions at 0°F. to 5.0°F. Till such arrangements have been made on a fairly large scale, freezing of green peas and for that matter other vegetables and fruits in India is likely to remain restricted.

#### (1) THE PROCESS OF CANNING

Of the different methods of preservation, referred to above, canning is the most important processing technique employed in India. Canning of peas and other products is controlled by the Directorate of Marketing and Inspection, Ministry of Food & Agriculture, Government of India under the Fruit Products Order, 1955 issued under Section 3 of the Essential Commodities Act, 1955. It has been made obligatory for the canners under the Fruit Products Order to take out licences for the processing of green peas and other fruits and vege-

tables for sale. The Order enforces *inter alia*—minimum standards of quality for fruit and vegetable products. The specifications for canned vegetables prescribed under the Fruit Products Order, 1955 are as under :—

*Specifications for bottled and canned vegetables*

Product	Variety	Special Characteristics	General characteristic
Bottled or canned vegetable	Any vegetable of suitable variety	The head space in the can shall not be more than 5/8th of an inch. The drained weight of the vegetables shall not be less than 55 per cent of the net weight of the contents (except in the case of canned tomatoes where this limit will be 50 per cent). Drained weight shall be determined by draining the contents for two minutes on a sieve of dimensions 8" x 8" having 8 meshes per linear inch.	The vegetables shall be reasonably fresh tender, of good colour and flavour and shall be free from pods, stalks, detached skin, extraneous matter like woody fibre, roots, etc. and shall be practically free from blemishes. The only substances that may be added are vegetables, sugar, salt, water, oil or fat, spices, sauce, citric acid and soluble calcium salt. The product shall not show any positive pressure at sea level and shall not show any sign of bacterial growth when incubated at 37° C and 55° C for one week. No preservative shall be used. No artificial colouring matter shall be present except in case of peas where permitted colour may be added. The finished product shall have the characteristic taste of the original material and shall be reasonably free from disintergration, damage from bruises and shall be uniformly prepared

Peas or any other product which have been dried or otherwise processed before canning must be described as processed and may not be described as "Green Fresh" or garden produce. It shall be clearly marked as prepared from dried raw material.

Canning of green peas in foreign countries has been developed to a considerable extent and it can generally be said that it is one of the lines which has been made fully automatic from the field to the final packing. In India, however, the picking of green peas, as stated earlier, is done by hand. In the factory also, the pods are shelled manually by contract labour, mainly female labour. Generally a woman can shell on an average between 15 to 20 seers of pods per day of 8 hours depending upon the size of the pods and the variety of peas. A few of the factories have set up pea hullers for shelling the pods. Most of the remaining factories are also trying to progressively replace shelling by hand with mechanised shelling. Some of the varieties of green peas particularly Desi, are not suitable for shelling by machines and have therefore to be shelled by hand. Shelled peas are then graded according to size either mechanically or by hand by passing through sieves. Their stage of maturity is also taken into consideration. The graded peas are put in hot water for a short time to inactivate enzymes and reduce microbes. This treatment is known as 'Blanching'. The peas after blanching are immediately cooled in water. They are then cleaned by washing repeatedly in cold water when foreign matter, shrivelled or discoloured seeds etc., are also removed. After inspection the blanched peas are filled into cans according to the required weight and are covered with hot brine solution with  $2\frac{1}{2}\%$  salt and 2 to 4% sugar depending upon the stage of maturity of the peas. Sometimes a little permitted colouring matter is added in the brine to make the product uniform in appearance in the final pack. The cans are then passed through a steam chamber called 'Exhaust Box' and sealed hermetically by a double seamer. After sealing, the cans are sterilised in retorts or autoclaves. If green peas are to be canned as curried peas, the usual spices in the form of curry and hydrogenated oil are mixed and added with suitable amount of brine to cover the inter-space in the cans. (See plate No. 7 facing page 9).

After the cans are sterilised they are cooled in a cooling tank before being removed to the store for observation, labelling, packing and marking. No preservative is used in the canning of green peas. The canned peas can be stored safely at room temperature, without any special arrangement. Generally for supplies to the Army, the canners give a warranty of one year for the product to remain in good quality. However canned peas can be stored for a longer period without spoilage under suitable storage conditions.

Some canners have marketing organisations of their own throughout India and market their products in many centres. Canned green peas have become popular particularly in hotels, and are likely to be found useful in areas where fresh vegetables are hard to

obtain. They would be handy to foresters, mountaineers, sailors etc. The use of canned peas is gaining ground in the upper class households also but there is still some sort of an opposition from the average housewife in India to the use of processed foods and only through educative propaganda can a market for such products be developed in India. With a view to keeping the price structure of canned products within the easy reach of the average consumer, the Government of India have introduced a scheme of subsidy on tin-plate used in the manufacture of cans. This subsidy has helped to some extent in bringing down prices of canned vegetables and this reduction is expected to attract more and more consumers. In spite of the reduction in price, the selling rates of canned peas in India are comparatively higher than those in foreign countries. Efforts are now being made by some parties to set up automatic pea canning plants in order to bring down the prices.

The export possibilities of canned green peas are not bright at present as many countries in the world have a well established canning industry engaged in the canning of green peas.

## (2) COOPERATIVE PROCESSING

Cooperatives can play an important role in the canning industry. The Food Processing Cooperative Society, Mahewa (district Etawah) in U.P. is doing pioneering work in the field of processing of vegetables and other horticultural produce on a cooperative basis. The working of the Society is given below briefly:—

The Cooperative Development Union, Mahewa with a view to increasing the income of the cultivator-members as well as to make green peas available to consumers at reasonable prices distributed about 80 maunds of garden-pea seeds to the cultivator-members during 1957-'58 with an undertaking to purchase the produce at a pre-determined rate. The Cooperative Union purchased the produce weighing 1363 maunds from the cultivators during the season. Of this, the Union supplied 794 maunds to private canners and got the balance canned on its own account at the Government Fruit Preservation and Canning Institute, Daliganj, Lucknow. The canned peas were sold in Lucknow and Kanpur on no-profit-no-loss basis. A limited quantity was sold in Delhi and Bombay also.

Encouraged by the success of this experiment, the Food Processing Cooperative Society, Mahewa was organised in December, 1958 with 59 cultivators and two primary societies as its members. The State Government also became a share holder. After installing the necessary plant and machinery, the society purchased about 1175

maunds of green peas from the cultivators during 1959 season for canning. The canned product was later sold by the society in the important cities of U.P. The society also conducted trials for the manufacture of tomato ketchup and goose-berry jam.

The Food Processing Cooperative Society, Mahewa is the first of its type in the country. It is located in the rural area and apart from giving good prices to cultivators, it makes available to consumers canned peas of good quality at cheaper rates. It is also giving employment to rural people. Besides it enables private canning factories to get the right type of peas suitable for canning.

It is recommended that such cooperative processing societies be organised in other pea growing tracts also.

## VI—ASSEMBLING, TRANSPORTATION AND DISTRIBUTION

### (1) ASSEMBLING

As green peas are valued for their freshness, the producer takes the major part of his produce directly to the assembling market. The agencies which are engaged in the assembling of green peas, besides the producer, are village merchants and itinerant dealers, wholesale merchants and commission agents and producers' co-operatives. It is estimated that the producer markets directly about 80 per cent to 90 per cent of the total marketable surplus. This is feasible on account of the fact that the cultivation of green peas for marketing is mostly concentrated near-about towns and cities or in the vicinity of road heads or rail heads, well connected with the consuming centres. Cultivators therefore, find it easy to market their produce directly in the neighbouring markets. In the interior, the producers take their produce to *hats* and *shandies* and sell it to retailers (*Khatiks* and *kunjras*) and consumers.

Figures of arrivals of green peas in some important markets in India have already been given on pages 9 and 10. Besides these markets, Meerut, Agra, Mathura, Bareilly, Moradabad, Dehra Dun, Nainital, Faizabad, Varanasi and Kanpur in Uttar Pradesh ; Ranchi and Hazaribagh in Bihar ; Darjeeling in West Bengal ; Amritsar and Ambala in the Punjab ; Jabalpur and Seoni in Madhya Pradesh and Bangalore in Mysore are also important assembling centres.

Generally the canners buy green peas from the wholesale markets. Only a few manufacturers have established relations with growers for cultivation of peas of the right type and quality. The others would do well in establishing direct contact with the growers.

so that the type of peas required for canning could be made available to them at a pre-determined rate. There is a general complaint amongst the canners about the paucity of the right type of peas suitable for canning in the wholesale markets. The Planning Department of the Uttar Pradesh Government distributed improved seeds of table peas (T 19 variety) during 1957-58 in the community development block of Mahewa in Etawah district with a view to overcoming this difficulty. Some details about this project have already been given under 'Processing'.

(a) *Market charges* :

Market charges for green peas are generally the same as those for other vegetables. These consist of the charges which the seller has to pay for tolls and octroi, handling charges, commission agent's charges, deductions for charity, etc. The buyer has to pay handling charges after the produce has been purchased by him and quite often commission charges also. Market charges levied in some of the important assembling and consuming markets are given below in Table No. XI.

TABLE No. XI

*Market charges on green peas in some important markets*

(Per 100 rupees)

Sl. No.	Market	Payable by Seller				Payable by Buyer				Grand Total	
		Com- mis- sion	Mar- ket fee	Hand- ling char- ges	Chari- ty tary	Oct- roi	Hau- lage from Rly. Stn.	To- tal	Com- mis- sion	Hand- ling char- ges	Total
1	Delhi	. 3.12	0.44	0.44	..	..	1.32	5.32	..	0.44	0.44 5.76
2	Lucknow	. 3.12	0.79	0.79	..	0.40	2.38	7.48	3.12	0.79	3.91 11.39
3	Allahabad	. 3.12	0.79	0.79	..	1.58	2.38	8.66	3.12	0.79	3.91 12.57
4	Patna	. 3.12	0.63	0.63	..	..	2.50	6.88	..	0.63	0.63 7.51
5	Gaya	. 3.12	0.63	0.63	..	..	2.50	6.88	..	0.63	0.63 7.51
6	Jullundur	. 6.25	0.44	0.44	..	0.88	1.75	9.76	3.12	0.44	3.56 13.32
7	Simla	. 3.12	..	0.25	0.13	0.50	0.76	4.76	6.25	0.25	6.50 11.26
8	Poona	. 3.25	0.19	0.54	..	0.54	1.08	5.60	6.25	0.54	6.79 12.39
9	Nagpur	. ..	0.14	0.28	..	0.45	0.54	1.41	6.25	0.28	6.53 7.94
10	Bombay	. 8.00	0.18	0.37	0.06	..	0.55	9.16	6.25	0.37	6.62 15.78
11	Calcutta	. 6.25	0.19	0.17	0.12	..	0.55	7.28	6.25	0.17	6.42 13.70

It will be observed that market charges payable by the seller as well as the buyer vary considerably from market to market. The seller has to pay the least in Nagpur out of all the above-mentioned eleven markets and the maximum in Jullundar. The buyer has to pay very little in Delhi, Patna and Gaya whereas charges in Simla, Poona, Nagpur, Bombay and Calcutta are fairly high—in some cases higher than those paid by the seller. The total marketing charges paid by the seller and the buyer range from less than Rs. 6.00 in Delhi to nearly Rs. 16.00 for Rs. 100.00 worth of green peas in Bombay.

Apart from paying high market charges, the seller is often the victim of malpractices at the time of weighment and price settlement. It is necessary, therefore, to regulate market charges and market practices besides providing reasonable amenities to the sellers in the markets.

(b) *Regulation of markets :*

Although legislation for the regulation of markets has been passed in the States of Punjab, Madhya Pradesh, Bombay, Mysore, Madras, Andhra Pradesh and Orissa, regulation of vegetable markets has not been undertaken in any of the States except at two centres viz., Ahmedabad and Surat. The conditions of marketing of vegetables can well be described as chaotic in many of the important markets in India. In view of this, it is necessary that early steps are taken at least by the States which have already enacted legislation for the regulation of markets to enforce it in the vegetable markets also. By doing so, at least the marketing charges will be reduced to begin with. As an illustration, comparative market charges levied by the market functionaries from the sellers before and after regulation in the markets of Surat and Ahmedabad are given below :

TABLE No. XII

*Market charges paid by the seller in Surat and Ahmedabad vegetable markets before and after regulation*

(Per Rs. 100 worth of green peas)

Charges	Surat		Ahmedabad	
	Before regulation	After regulation	Before regulation	After regulation
1	2	3	4	5
	Rs. nP.	Rs. nP.	Rs. nP.	Rs. nP.
i. Commission	..	..	9.37	5.00
			6.25	5.00

TABLE No. XII.—(Contd.)

I	2	3	4	5
	Rs. nP.	Rs. nP.	Rs. nP.	Rs. nP.
2. Weighing . . . .	0.50	0.25	0.12	0.12
3. Quality allowance . . . .	2.50	Nil	Nil	Nil
4. Charity . . . .	0.50	Nil	0.06	Nil
5. Market cess . . . .	Nil	0.08	Nil	0.08
6. <i>Marfat</i> charges etc. for consignments brought from Railway Station.	1.50	1.00	1.44	1.36
Total . . . .	14.37	6.33	7.87	6.56

It will be observed that in the Surat vegetable market, the commission charges have been reduced from Rs. 9.37 to Rs. 5 per 100 rupees while the quality allowances and charity amounting to Rs. 3 have been altogether eliminated. The total charges payable by the seller have been brought down from Rs. 14.37 to Rs. 6.33 per 100 rupees, a substantial saving of Rs. 8.04 per 100 rupees. In the Ahmedabad vegetable market also a saving of Rs. 1.31 per 100 rupees was effected. Such savings in market charges not only result in better prices to the producer but also lesser prices to the consumer.

In the Regulated markets, better facilities are provided to the sellers and the buyers and fair market practices are ensured. Such a situation would in turn be conducive to the organisation of producers' marketing co-operatives also.

## (2) TRANSPORTATION

As mentioned earlier, green peas for marketing are generally grown near the consuming markets. However, demand for green peas is increasing and more and more growers are taking up the cultivation in areas away from the towns and cities at convenient rail and road heads. From the vicinity of the consuming centres green peas are transported either as head-loads or on carts and transport charges generally vary from 19 to 25 naye paise and 6 to 9 naye paise per maund per mile respectively. However, where the distances are over 10 miles, green peas are transported by motor-trucks which are a faster mode of transport. The truck charges are also reported to be competitive in many cases.

For long distances, however, railway transport is still the most important. A recent study of long-distance movement of vegetables revealed that large quantities of green peas are moved over a distance of 300 miles and above from some important producing centres. It was found that as much as 21,500 maunds (802 M. tons) of green

peas were moved in a season by rail from Delhi to Bombay. Figures of movement between some important centres are given in the table below.

TABLE No. XIII

*Movement of green peas by rail over a distance of 300 miles and above from a few selected stations during 1957- 58*

Sl. No.	Despatching Station	Important Receiving Stations	Quantity	
			Mds.	Metric tons
1	Delhi	Bombay. . . . .	21,500	802
		Ahmedabad . . . . .	1,950	73
		Baroda . . . . .	1,940	72
		Bikaner . . . . .	1,850	69
		Surat . . . . .	1,710	64
		Nagpur . . . . .	960	36
		Broach . . . . .	430	16
2	Lucknow	Calcutta . . . . .	3,577	134
		Bombay . . . . .	1,564	58
		Jullundur . . . . .	1,442	54
		Ludhiana . . . . .	1,291	48
		Amritsar . . . . .	1,047	39
		Ferozepur . . . . .	851	32
		Ambala . . . . .	784	29
		Saharanpur . . . . .	442	16
		Dehra Dun . . . . .	390	15
		Delhi . . . . .	368	14
		Bhatinda . . . . .	346	13
		Patna . . . . .	335	13
		Moga . . . . .	315	12
		Sriganganagar . . . . .	296	11
		Asansol . . . . .	177	7
		Jagadhari . . . . .	275	10
		Hardwar . . . . .	167	6
		Abohar . . . . .	158	6
		Phagwara . . . . .	153	6
3	Allahabad	Bombay. . . . .	8,500	317
		Calcutta . . . . .	4,000	149
		Nagpur . . . . .	300	11
4	Varanasi	Calcutta . . . . .	4,326	161
		Bombay . . . . .	1,189	44
5	Dehra Dun	Calcutta . . . . .	2,990	112
6	Simla	Calcutta . . . . .	1,270	47
		Bombay. . . . .	1,229	46
7	Darjeeling	Calcutta . . . . .	2,103	78
8	Ambala	Calcutta . . . . .	1,000	37
9	Nasik	Calcutta . . . . .	300	11
		Allahabad . . . . .	200	7
		Jabalpur . . . . .	100	4
		Nagpur . . . . .	100	4
10	Amritsar	Calcutta . . . . .	200	7

Cases of transit delays by rail transport are reported to be common. On this account even for long distance despatches motor-trucks are now being pressed into service. It will be greatly helpful if the Railway Administration takes steps to ensure that consignments of fruits and vegetables awaiting transhipments are moved expeditiously and also that such consignments are not left exposed to the sun.

### (3) DISTRIBUTION

The functionaries engaged in the distribution of green peas are almost the same as those engaged in their assembling. The wholesalers often make bulk purchases directly from the producers for local sale to the retailers or for despatch to consuming markets for sale on commission basis. (See plate Nos. 8 and 9 between pages 28 and 29).

#### Price spread

Generally speaking lesser the marketing costs, greater the share of the producer in the price paid by the consumer. It has already been stated earlier that a considerable proportion of the marketable surplus is brought to the assembling markets by the producers themselves. Obviously by direct marketing the producer gets a larger share of the consumer's rupee. Another important factor affecting the producer's share in the consumer's rupee is the location of the consuming markets. The nearer a consuming market is to the place of production the greater the share of the producer in the price paid by the ultimate consumer. When a consuming market is located at a long distance, the transport charges account for a sizeable proportion of the price spread. Another important item of cost is the retailer's margin. This is particularly high in the case of vegetables and fruits and is to a great extent accounted for by the spoilage arising out of deterioration in storage particularly when the sales are not fast enough. Five instances indicating the importance of the various marketing charges are given below and illustrated in the diagram facing page 3.

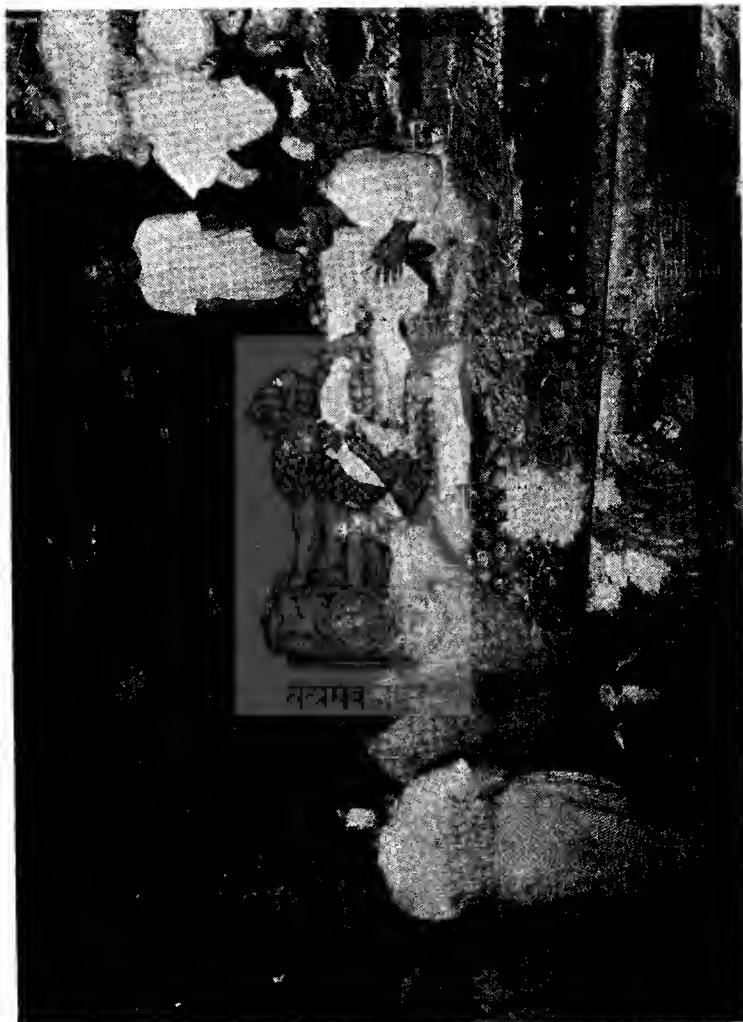
#### Example 1

*Two maunds of local green peas produced and sold to the consumers at Ranchi (Bihar)*

Item	Amount	Share of the price paid by the consumer (Percentage)
1	2	3
	Rs. nP.	Rs. nP.
i. Retailer's price paid by the consumer	30.00	100.0



Green peas being sold in a wholesale market.



Green peas being sold in a retail shop along with other vegetables.

## Example 1—contd.

I	2	3
	Rs. nP.	Rs. nP.
2. Retailer's margin . . .	4.50	15.0
3. Retailer's cost price . . .	25.50	85.0
4. Expenses incurred by the retailer		
(a) Riksha charges from Ranchi <i>hat</i> to Ranchi retail market.	0.25	0.9
(b) Coolie charges for loading rickshaw at Ranchi <i>hat</i> .	0.13	0.4
(c) Market charges realised by the Thekedar of the market.	0.12	0.4
5. Wholesale price paid by the retailer	25.00	83.3
6. Wholesaler's margin . . .	3.87	12.9
7. Wholesaler's cost price . . .	21.13	70.4
8. Expenses incurred by the wholesaler		
(a) Cartage for carrying from the village to Ranchi <i>hat</i> .	1.00	3.3
(b) Market fee realised by the Thekedar of the <i>hat</i> .	0.13	0.4
9. Cultivator's share . . .	20.00	66.7

## Example 2

Seven maunds of local green peas produced and sold to the consumers in Lucknow

Item	Amount	Share of price paid by the consumer (Percentage)	
		1	2
	Rs. nP.	Rs. nP.	
1. Retailer's price paid by the consumer	49.48		100.00
2. Retailer's margin . . .	9.40		19.0
3. Retailer's cost price . . .	40.08		81.0
4. Expenses incurred by the retailer—			
(a) Cartage from <i>mandi</i> to the retailer's shop at the rate of 0.25 nP. per maund.	1.75	3.5	
(b) Labour charges at the rate of 0.06 nP. per maund.	0.42	0.9	6.6
(c) Commission at the rate of 0.03 nP. per rupee.	1.10	2.2	

## Example 2—contd.

I	2	3
	Rs. nP.	Rs. nP.
5. Wholesale price paid to the cultivator by the retailer.	36.81	74.4
6. Expenses incurred by the cultivator—		
(a) Cartage from village to Kaiserbagh <i>mandi</i> at the rate of 0.37 nP. per maund.	2.59	5.2
(b) Octroi at the rate of 0.03 nP. per maund.	0.21	0.4
(c) <i>Mandi</i> tax at the rate of 0.06 nP. per maund.	0.42	0.9
(d) Labour charges at the rate of 0.06 nP. per maund.	0.42	0.9
(e) Commission at the rate of 0.03 nP. per rupee	1.10	2.2
7. Cultivator's share . . . . .	32.07	64.8

## Example 3

Three maunds of local green peas produced and sold to the consumers in New Delhi

Item	Amount	Share of the price paid by the consumer (Percentage)
	Rs. nP.	Rs. nP.
1. Retailer's price paid by the consumer	48.74	100.0
2. Retailer's margin . . . . .	16.31	33.4
3. Retailer's cost price . . . . .	32.43	66.6
4. Expenses incurred by the retailer—		
(a) Cartage from <i>mandi</i> to the retailer's shop at the rate of 0.50 nP. per maund.	1.50	3.1
(b) Labour charges at the rate of 0.06 nP. per maund.	0.18	0.4
5. Wholesale price paid by the retailer	30.75	63.1
6. Expenses incurred by the cultivator—		
(i) Cartage from village to Sabzi <i>mandi</i> , Delhi at the rate of 0.50 nP. per maund.	1.50	3.1
(ii) Market charges—		
(a) Commission at the rate of 0.03 nP. per rupee.	0.92	1.9
(b) Market fee at the rate of 0.06 nP. per maund.	0.18	0.4
7. Cultivator's share . . . . .	28.15	57.8

## Example 4

Eight maunds of green peas produced in the Seoni district (Madhya Pradesh) and sold by the cultivator in Nagpur.

Item	Amount	Share of the price paid by the Consumer (Percentage)
	Rs. nP.	Rs. nP.
1. Retailer's price paid by the consumer	100.00	100.00
2. Retailer's margin	21.52	21.5
3. Retailer's cost price	78.48	78.5
4. Expenses incurred by the retailer—		
(a) Cartage from wholesale market in Nagpur to the retailer's shop at the rate of 0.25nP. per maund.	2.00	2.0
(b) Labour charges at the rate of 0.06 nP. per maund.	0.48	0.5
5. Wholesale price paid by the retailer	76.00	76.0
6. Wholesaler's margin	8.16	8.2
7. Wholesaler's cost price	67.84	67.8
8. Expenses incurred by the wholesaler Commission at the rate of 0.06nP. per rupee.	3.84	3.8
9. Price paid by the wholesaler or gross price received by the cultivator.	64.00	64.00
10. Expenses incurred by the cultivator		
(i) Cartage from village to Seoni at the rate of 0.37 nP. per maund.	2.96	3.0
(ii) Truck charges from Seoni to Nagpur at the rate of Rs. 1.50 nP. per maund.	12.00	12.0
(iii) Octroi at the rate of 0.10 nP. per maund in Nagpur.	0.80	0.8
(iv) Market charges—		
(a) Market fee at the rate of 0.03 nP. per maund.	0.24	0.2
(b) Hamali at the rate of 0.06 nP. per maund.	0.48	0.5
11. Cultivator's share	47.52	47.5

## Example 5

Five maunds of green peas purchased from Khuldabad market (Allahabad) by a wholesaler and sold in Bombay.

Item I	Amount 2	Share of the price paid by the con- sumer (Percentage) 3
		Rs. nP.      Rs. nP.
1. Retailer's price paid by the consumer	117.80	100.0
2. Retailer's margin . . .	19.62	16.7
3. Retailer's cost price . . .	98.18	83.3
4. Expenses incurred by the retailer in Bombay—		
(a) Commission at the rate of 0.06 nP. per rupee.	5.43	4.6
(b) Cartage etc. to the retailer's shop at the rate of 0.50 nP. per maund.	2.50	2.1
	7.93	6.7
5. Wholesale price paid by the retailer	90.25	76.6
6. Wholesaler's margin (consignee of Allahabad).	10.32	8.8
7. Wholesaler's cost price . . .	79.93	67.8
8. Less in weighment . . .	1.75	1.5
9. Expenses incurred by the wholesaler—		
(a) Cost of packing, sewing, <i>sutli</i> and labour charges etc. at the rate of 0.12 nP. per maund.	0.60	0.5
(b) Cost of 4 baskets at the rate of 0.6 nP. each.	2.48	2.1
(c) Cartage etc. from market to the Railway station at the rate of 0.19 nP. per maund.	0.95	0.8
(d) Railway freight from Allahabad to Bombay.	29.50	25.1
(e) Cartage etc. at the rate of 03.1 nP. per maund in Bombay.	1.55	1.3
(f) Market fee at the rate of 0.06 nP. per maund at Bombay.	0.30	0.2
(g) Commission at the rate of 0.08 nP. per rupee in Bombay.	7.12	6.0
(h) Charity in Bombay . . .	0.06	0.1
(i) Miscellaneous expenditure at the Allahabad Station.	0.62	0.5
	43.18	36.6
10. Price paid by the wholesaler or gross price received by the cultiva- tor.	35.00	29.7

## Example 5—contd.

	1	2	3
	Rs. nP.	Rs. nP.	
11. Expenses incurred by the cultivator—			
(a) Cartage from village to Khulda- bad market at the rate of 0.44 nP. per maund.	2.20	1.9	
(b) Octroi at the rate of 0.12 nP. per maund.	0.60	0.5	
(c) Market fee at the rate of 0.06 nP. per maund.	0.30	4.45	0.2
(d) Labour charges at the rate of 0.06 nP. per maund.	0.30	0.2	
(e) Commission at the rate of 0.03 nP. per rupee.	1.05	0.9	
12. Cultivator's share . . .	30.55		26.0

It will be observed that the producer got about 65% or more of the price paid by the consumer in the nearby consuming markets in the first two instances. In the third case, though the consuming market was situated nearby as in the case of the first two instances the producer's share was only about 58% of the consumers rupee. This was mainly due to the fact that the retailer's margin was comparatively high. In the fourth instance, the producer got a still lower share because of the distance between the centres of production and consumption. In the fifth instance, the distance was considerably greater and therefore the share of the producer was much lower only 26 per cent of the price paid by the consumer. The railway freight alone absorbed as much as 25% of the retail price in Bombay. It will further be observed that the incidence of commission charges was the highest in Bombay. The wholesaler's margin also is rather high in some cases and requires to be appropriately cut down.

Amongst the important steps to be taken with a view to increasing the producer's share in the consumer's rupee are :—

- (1) Regulation of market charges and practices.
- (2) Reduction in the number of intermediaries.
- (3) Use of suitable packages particularly for long distance transport.
- (4) Provision of cheap, quick and suitable transport.
- (5) Efficient and reliable market intelligence.

## VII—RESEARCH AND DEVELOPMENT

Little research work has so far been done in India on the improvement of garden peas. A majority of the varieties at present cultivated in the various parts of the country are introductions from foreign countries particularly the United Kingdom, France, Italy, the United States of America and Canada. In recent years, however, introduction of new varieties and hybridisation work have received some planned attention.

The Indian Agricultural Research Institute, New Delhi, has selected two varieties *viz.* Early Badger and Bonneville both American out of a large number of varieties collected from abroad. In U.P. a good table variety *viz.*, T 19 has been released. This has been selected from the progenies of a cross between a large-podded exotic variety and an Indian variety.

Several inter-varietal crosses are under study at the Botany Division of the Indian Agricultural Research Institute. The main objective of these crosses has been to make use of the good filling character of Greenfeast or Lincoln, prolific bearing of Bonneville and earliness and hardiness of the dwarf variety Hara Bauna. Work is also in progress to breed early sugar-podded varieties. The I.A.R.I. has introduced a bold white-seeded variety *viz.*, "Mandhorfer" from Australia which matures about 15 days earlier than the Desi white peas. The U. P. Department of Agriculture has evolved a high yielding variety T 29 which is becoming popular in U. P. The Bihar Department recommends B. R. 12 which closely resembles Kanawari or Simla peas. The Department of Agriculture, Punjab, has also developed two varieties *viz.* P 8 and P 35.

The Directorate of Fruit Utilisation in U. P. is also conducting trials to find out varieties suitable for canning. During 1957-'58 the Directorate imported pedigreed seeds of the following eight varieties of peas from the United Kingdom.

1. Alaska.
2. Thomas Laxation.
3. Lincoln.
4. Gregory's Surprise.
5. Canner's Perfection.
6. Kelvedon Wonder.
7. Sharpe's Metor.
8. Charles 1st.

The above varietal experiments are being carried out at the Government Hill Fruit Research Station, Chaubatia, District Almora. The Directorate under its development plan schemes intends to multiply some of the selected canning varieties from the above list and distribute the seeds to the growers.

## VIII—CONCLUSIONS AND RECOMMENDATIONS

### (1) MAINTENANCE OF STATISTICS

Separate records of area and production of green peas and other vegetables are not maintained in any State in India. Data on these points will be of great help in planning future production of vegetables—so vital to the health of the nation. It is, therefore, recommended that at least the State Governments of the important pea-growing States *viz.*, U. P., Bihar, Madhya Pradesh, Bombay, West Bengal, Rajasthan and the Punjab and the centrally administered areas of Delhi and Himachal Pradesh may make early arrangements for recording the area and production of green peas. These figures will be helpful in making forecasts of production of green peas which will enable the canning factories to formulate their production plans.

### (2) DEVELOPMENT OF VARIETIES SUITABLE FOR CANNING AND PROCESSING

No serious effort had in the past been made for the breeding of varieties suitable for canning and processing. A beginning has, however, now been made. It is recommended that this work should be continued and intensified.

### (3) NEED FOR IMPROVING MARKET INTELLIGENCE

Generally speaking authentic informations with regard to prices, arrivals and despatches are rarely available to the producers. They are therefore, unable to get the full value of their produce. It is, therefore, recommended that early steps be taken by the State Governments concerned to set up efficient market news services.

### (4) IMPROVED PACKAGES

Green peas are generally packed in gunny bags. Baskets are used only when they are to be transported over long distances and during summer months. Some observations made by this Directorate indicate that packing in baskets is preferable to packing in bags for long-distance despatches. Gunny bags may, however, be used for short distances. It is advisable to use mesh bags for packing green peas instead of double woven bags used for sugar and grains as the former provide better aeration.

Further researches on packaging are indicated.

### (5) REGULATION OF VEGETABLE MARKETS

Conditions of marketing vegetables in many of the important markets in the country can well be described as chaotic. In view of this, it is recommended that early steps may be taken at least by those States which have already enacted legislation for the regulation of markets to enforce it in the vegetable markets also. These Acts provide fair dealings and healthy competition in the sale and purchase of agricultural produce.

### (6) ORGANISATION OF SERVICE-CUM-MARKETING COOPERATIVE SOCIETIES

The time has come when concerted efforts may be made by the States for the organisation of service-cum-marketing societies for agricultural produce including vegetables. This will help the growers in getting a larger share of the price paid by the consumer and also in improving production.

### (7) REDUCTION IN RAILWAY FREIGHT

Vegetables are being charged by the railways at half parcel rate as against quarter parcel rate for fruits. It is suggested that this differentiation in the case of vegetables which are cheaper and are consumed by larger sections of the population, may not be made. A reduction in freight rates for vegetables will not only benefit the growers and the consumers but is also likely to bring more revenue to the railways by attracting larger consignments, to distant places.

### APPENDIX I

*Important green peasgrowing districts in some of the pea-growing States of India*

(1956-57)

Sl. No.	States/Territories	Districts		Acres	Hectares		
		1	2	3	4	5	
1	Uttar Pradesh	.	.	1. Lucknow	.	4500	1821
		.	.	2. Meerut	.	4000	1618
		.	.	3. Kanpur	.	3800	1538
		.	.	4. Allahabad	.	3500	1416
		.	.	5. Varanasi	.	3500	1416
		.	.	6. Faizabad	.	3500	1416
		.	.	7. Bulandshahr	.	3000	1214
		.	.	8. Mathura	.	2800	1133
		.	.	9. Bareilly	.	2500	1012
		.	.	10. Moradabad	.	2400	971
		.	.	11. Saharanpur	.	2000	809
		.	.	12. Aligarh	.	2000	809
		.	.	13. Agra	.	2000	809
		.	.	14. Gorakhpur	.	2000	809
		.	.	15. Nainital	.	1250	506

37  
APPENDIX I—*contd.*

1	2	3	4	5
2	Bihar . . . . .	1. Gaya . . . . . 2. Patna . . . . . 3. Bhagalpur . . . . . 4. Monghyr . . . . . 5. Darbhanga . . . . . 6. Shahabad . . . . . 7. Ranchi . . . . . 8. Hazaribagh . . . . .	1850 1615 1450 1400 1365 1365 1200 1070	749 668 587 567 552 552 486 433
3	Madhya Pradesh . . . . .	1. Mandla . . . . . 2. Bilaspur . . . . . 3. Rewa . . . . . 4. Jabalpur . . . . . 5. Raisen . . . . . 6. Narsingpur . . . . . 7. Raipur . . . . . 8. Durg . . . . . 9. Seoni . . . . .	1956 1548 1128 882 855 810 810 650 608	792 626 456 357 346 328 328 263 246
4	Bombay . . . . .	1. Poona . . . . . 2. Panch Mahals . . . . . 3. Nasik . . . . . 4. N. Satara . . . . . 5. W. Khandesh . . . . . 6. Broach . . . . .	2771 2331 1856 1346 1117 728	1121 943 589 545 452 295
5	West Bengal . . . . .	1. Nadia . . . . . 2. Darjeeling . . . . . 3. Murshidabad . . . . . 4. 24-Paraganas . . . . . 5. Bankura . . . . . 6. Hooghly . . . . .	1600 1010 1000 966 750 455	647 409 405 391 304 184
6	Rajasthan . . . . .	1. Bharatpur . . . . . 2. Bhilwara . . . . . 3. Kotah . . . . . 4. Jaipur . . . . .	2364 670 605 596	957 271 245 241
7	Punjab . . . . .	1. Amritsar . . . . . 2. Ambala . . . . . 3. Gurgaon . . . . . 4. Kangra . . . . . 5. Patiala . . . . .	1000 800 700 500 300	405 324 283 202 121
8	Mysore . . . . .	1. Belgaum . . . . . 2. Bangalore . . . . .	3216 525	1301 212
9	Delhi . . . . .	Delhi . . . . .	8086	3272
10	Himachal Pradesh . . . . .	Mahasu . . . . .	642	260

## APPENDIX

## State-wise marketable surplus

States	Production		Village consumption			Retention for seed in terms of green pods			Total
	Quantity		Quantity @ Percentage			Quantity @ Percentage			
	1	2	3	4	5	6	7	8	9
	Maunds	Metric tons	Maunds	Metric tons		Maunds	Metric tons		Maunds
1. U. P.	48,57,650	1,81,807	4,85,765	18,131	10	3,08,455	11,513	6.3	7,94,220
2. Madhya Pradesh	4,86,570	18,161	38,926	1,453	8	48,657	1,816	10.0	87,583
3. Bihar	4,84,943	18,100	38,795	1,448	8	56,935	2,125	11.7	95,730
4. Bombay	5,19,526	19,391	5,195	194	1	42,287	1,578	8.1	47,482
5. Delhi	4,04,300	15,090	28,301	1,056	7	28,301	1,056	7.0	56,602
6. W. Bengal	2,24,470	8,378	22,447	838	10	23,832	890	10.6	46,279
7. Rajasthan	3,23,298	12,067	16,165	603	5	20,955	782	6.5	37,120
8. Punjab	2,53,750	9,471	17,763	663	7	15,925	594	6.3	33,688
9. Mysore	62,864	2,346	629	23	1	13,752	513	21.9	14,381
10. Orissa	15,750	588	473	18	3	5,513	206	35.0	5,986
11. Himachal Pradesh	54,000	2,015	8,160	81	4	3,150	118	5.8	5,310
12. Assam	22,610	844	678	25	3	1,113	42	4.9	1,791
13. Madras	8,280	309	248	9	3	725	27	8.8	973
14. Kerala	1,140	43	627	23	55	399	15	35.0	1,026
15. Others	10,000	373	500	19	5	1,050	39	10.5	1,550
<b>TOTAL</b>	<b>77,29,151</b>	<b>2,88,483</b>	<b>6,58,672</b>	<b>2,45,84</b>	<b>8.5</b>	<b>5,71,049</b>	<b>21,314</b>	<b>7.4</b>	<b>12,29,721</b>

@ Percentage of

## II

of green-peas in India (1956-57)

Retention		Wastage		Total Retention plus wastage		Marketable surplus	
State	Quantity	Quantity	@ Percentage	Quantity	@ Percentage	Quantity	@ Percentage
11	12	13	14	15	16	17	18
Metric tons	Maunds	Metric tons		Maunds	Metric tons	Maunds	Metric tons
29,644	1,94,306	7,252	4.0	9,88,526	36,896	20.3	38,69,124
3,269	21,896	818	4.5	1,09,479	4,087	22.5	3,77,091
3,573	19,398	724	4.0	1,15,128	4,297	23.7	3,69,815
1,772	15,586	582	3.0	63,068	2,354	12.1	4,56,458
2,112	12,129	453	3.0	68,731	2,565	17.0	3,35,569
1,728	8,979	335	4.0	55,258	2,063	24.6	1,69,212
1,385	9,699	362	3.0	46,819	1,747	14.5	2,76,479
1,257	11,419	426	4.5	45,107	1,683	17.8	2,08,643
536	1,886	70	3.0	16,267	606	25.9	46,597
224	315	12	2.0	6,301	236	40.0	9,449
199	8,240	121	6.0	8,550	320	15.8	45,450
67	678	25	3.0	2,469	92	10.9	20,141
36	166	6	2.0	1,139	42	13.8	7,141
38	23	1	2.0	1,049	39	92.0	91
58	400	15	4.0	1,950	73	19.5	8,050
45,898	3,00,120	11,202	3.9	15,29,841	57,100	19.8	61,99,310
							2,31,383
							80.5
							80.2

the production.

## APPENDIX III

*Average monthly wholesale prices of green peas in Delhi  
(1952-53 to 1956-1957)*

(Rupees per maund  
or 37.324 kgs.)

Year	November	December	January	February	March	Average			
(a) Variety—Desi peas									
1952-'53		19.12	16.50	9.37	12.93	14.48			
1953-'54	.	16.25	13.12	8.00	9.10	11.62			
1954-'55	.	16.50	16.88	5.47	7.23	11.52			
1955-'56	.	20.00	12.37	8.37	9.62	12.59			
1956-'57	.	23.75	12.37	8.37	9.62	13.53			
AVERAGE	.	19.12	14.25	7.92	9.70	12.75			
(b) Variety—English peas									
1952-'53	.	54.98	34.14	26.50	19.50	19.84	30.99		
1953-'54	.	53.62	26.31	17.00	10.62	13.67	24.24		
1954-'55	.	59.20	31.75	22.00	11.00	13.67	27.52		
1955-'56	.	51.00	42.50	20.00	11.00	13.30	27.56		
1956-'57	.	56.00	36.00	25.62	12.00	14.32	28.79		
AVERAGE	.	54.96	34.14	22.22	12.82	14.96	27.82		
(c) Variety—Simla peas									
Year	April	May	June	July	August	September	October	Average	
1953	.	32.50	37.50	36.00	99.00	72.61	52.75	60.00	55.76
1954	.	26.50	43.00	44.50	70.75	77.50	35.50	49.25	49.57
1955	.	16.62	22.40	22.75	42.00	65.60	37.50	46.12	36.14
1956	.	22.75	29.75	46.00	51.25	46.61	44.51	64.75	43.66
1957	.	24.31	33.68	47.50	42.87	72.22	70.00	71.11	51.67
AVERAGE	.	24.54	33.27	39.35	61.17	66.91	48.05	58.24	47.36

Source.—Information supplied by the Bureau of Economics and Statistics, Delhi State, Delhi.

## APPENDIX IV

*Average monthly wholesale prices of green peas in Lucknow  
(1952-53 to 1956-57)*

(a) *Variety—Desi peas*(Rupees per maund  
or 37.324 kgs.)

Year		December	January	February	March	Average
1952-'53	.	13.00	6.50	4.25	8.00	7.94
1953-'54	.	12.50	6.00	4.00	7.50	7.50
1954-'55	.	14.00	8.25	5.00	9.00	9.06
1955-'56	.	12.50	5.00	3.75	7.25	7.13
1956-'57	.	11.75	6.00	3.00	6.75	6.88
AVERAGE	.	12.75	6.35	4.00	7.70	7.70

(b) *Variety—English peas*

Year		November	December	January	February	March	Average
1952-'53	.	38.50	20.00	14.50	7.00	10.75	18.15
1953-'54	.	38.00	19.25	14.00	6.50	10.25	17.60
1954-'55	.	42.00	22.50	16.00	7.25	11.50	19.85
1955-'56	.	38.00	19.00	12.00	6.00	9.75	16.95
1956-'57	.	36.00	17.50	11.25	5.75	9.25	15.95
AVERAGE	.	38.50	19.65	13.55	6.50	10.30	17.70

(c) *Variety—Nainital peas*

Year	April	May	June	July	August	September	October	Average	
1953	.	N.A.	37.50	42.50	45.75	43.00	42.25	44.50	42.58
1954	.	N.A.	36.75	40.25	46.00	44.00	42.50	45.75	42.54
1955	.	N.A.	38.00	42.00	45.50	43.25	43.00	45.25	42.83
1956	.	N.A.	39.50	42.25	45.25	43.00	42.00	44.00	42.67
1957	.	N.A.	36.75	41.75	45.00	42.50	41.25	42.25	41.67
AVERAGE	N.A.	37.70	41.75	45.50	43.15	42.20	44.45	42.46	

## APPENDIX V

*Average monthly wholesale prices of green peas in Allahabad  
(1952-1953 to 1956-57)*

(a) *Variety—Desi peas* (Rupees per maun  
or 37.324 kg)

Year		December	January	February	March	Aver:
1952-'53	.	14.25	7.00	4.50	8.50	8.5
1953-'54	.	13.75	6.50	3.75	7.25	7.8
1954-'55	.	15.50	7.25	5.25	8.75	9.1
1955-'56	.	13.25	6.75	4.00	7.00	7.7
1956-'57	.	12.00	5.50	3.25	6.00	6.6
AVERAGE	.	13.75	6.60	4.15	7.50	8.0

(b) *Variety—English peas*

Year		November	December	January	February	March	Avera
1952-'53	.	39.00	21.75	15.25	7.50	11.00	18.9
1953-'54	.	37.75	20.25	13.75	7.00	10.50	17.8
1954-'55	.	44.50	23.25	16.50	7.75	11.50	20.7
1955-'56	.	36.50	20.50	13.25	6.25	9.00	17.31
1956-'57	.	35.25	18.75	12.50	6.00	9.75	16.41
AVERAGE	.	38.60	20.90	14.25	6.90	10.35	18.25

## APPENDIX VI.

*Average monthly wholesale prices of green peas in Patna  
(1952-1953 to 1956-1957)*

(a) *Variety—Desi peas* (Rupees per maun  
or 37.324 kgs)

Year		December	January	February	March	Averag
1952-'53	.	14.50	8.75	4.50	9.00	9.19
1953-'54	.	15.75	8.00	5.50	8.75	9.50
1954-'55	.	16.50	9.00	5.75	8.50	9.94
1955-'56	.	15.25	8.00	5.00	8.50	9.19
1956-'57	.	13.62	7.50	4.87	7.75	8.43
AVERAGE	.	15.12	8.25	5.12	8.50	9.25

## APPENDIX VI—Contd.

(b) *Variety—Ranchi peas*

Year		November	December	January	Average
1952-'53	.	31.50	21.00	15.00	22.50
1953-'54	.	31.00	20.75	14.50	22.08
1954-'55	.	31.25	20.00	14.75	22.00
1955-'56	.	30.50	19.25	18.75	22.83
1956-'57	.	31.25	18.75	12.00	20.67
AVERAGE .	.	31.10	19.95	15.00	22.02

## APPENDIX VII

*Average monthly wholesale price of green peas in Simla  
(1953 to 1957)*

Variety—*Simla peas*(Rupees per maund  
or 37.324 kgs.)

Year	May	June	July	August	September	October	November	Average
1953 .	25.75	30.25	46.50	51.75	42.00	36.00	28.75	37.29
1954 .	26.50	29.50	48.00	50.25	43.50	37.50	29.00	37.75
1955 .	27.00	32.00	49.50	53.00	44.75	38.00	30.50	39.25
1956 .	24.25	31.25	45.75	50.00	41.00	35.25	28.00	36.50
1957 .	24.50	30.00	44.00	50.25	40.25	33.75	26.25	35.57
AVERAGE .	25.60	30.60	46.75	51.05	42.30	36.10	28.50	37.27

## APPENDIX VIII.

*Average monthly wholesale prices of green peas in Calcutta from (1953 to 1957)*

Year	(a) <i>Variety—Desi (Local)</i>	(Rupees per maund or 37.324 kgs.)			
		January	February	March	Average
1953	12.20	9.50	8.00	9.90	
1954	9.89	7.25	7.00	8.05	
1955	8.70	7.87	12.12	9.56	
1956	10.67	10.50	9.67	10.28	
1957	7.25	10.25	14.67	10.72	
AVERAGE	9.74	9.07	10.29	9.70	

(b) *Variety—Bihar peas*

Year	November	December	January	February	March	Average
1952-'53	28.08	39.00	16.80	12.00	N.A.	23.97
1953-'54	31.50	24.00	12.39	9.00	N.A.	19.22
1954-'55	24.67	26.65	11.89	N.A.	14.50	19.43
1955-'56	24.00	23.80	15.50	N.A.	14.00	19.33
1956-'57	33.39	29.50	13.50	N.A.	13.50	22.47
AVERAGE	28.33	28.59	14.02	10.50	14.00	19.09

(c) *Variety—U. P. peas*

Year	January	February	March	Average
1953	24.75	23.75	30.25	26.25
1954	N.A.	N.A.	N.A.	N.A.
1955	18.33	17.75	18.50	18.19
1956	18.75	17.00	20.50	18.75
1957	16.60	15.60	18.20	16.80
AVERAGE	19.61	18.52	21.86	20.00

## APPENDIX VIII—Contd.

Year	(d) <i>Variety—Darjeeling peas</i>							(Rupees per maund or 37.324 kgs.)			
	April	May	June	July	Aug- ust	Sept- ember	Oct- ober	Nov- ember	Dece- mber	Ave- rage	
1953	.	30.25	33.20	52.50	72.50	82.50	68.25	54.00	37.50	26.50	50.80
1954	.	23.75	25.20	42.50	60.00	52.50	52.50	45.00	30.00	28.75	40.02
1955	.	23.41	27.75	28.75	46.00	45.50	45.50	45.00	29.00	26.20	35.23
1956	.	23.58	21.50	30.59	65.00	77.50	58.75	42.50	38.00	36.25	43.74
1957	.	21.25	21.00	36.25	60.00	70.00	60.00	50.00	40.00	24.00	42.50
AVERAGE	.	24.45	25.73	38.12	60.70	65.60	57.00	47.30	34.90	28.34	42.46

(e) *Variety—Simla peas*

Year		July	August	September	October	Average
1953	.	85.00	70.00	81.25	66.67	75.73
1954	.	71.67	81.67	65.00	61.67	70.00
1955	.	50.00	76.67	56.00	65.00	61.92
1956	.	56.67	62.00	62.50	62.50	60.92
1957	.	57.50	87.50	100.00	50.00	73.75
AVERAGE	.	64.17	75.57	72.95	61.17	68.46

Source.—Calcutta price bulletin (Published by Govt. of West Bengal).  
4—4 A. M. A./60

## APPENDIX IX

*Average monthly wholesale prices of green peas in Poona  
(1952-1953 to 1956-1957 )*

Year	Variety—Desi peas							(Rupees per maund or 37.324 kgs.)	
	July	Aug- ust	Sept- ember	Oct- ober	Nov- ember	Dece- mber	Janu- ary	Feb- ruary	Ave- rage
1952-'53	.	60.00	16.25	22.00	35.75	..	39.50	N.A.	N.A.
1953-'54	.	N.A.	16.00	22.25	38.00	..	N.A.	20.75	18.50
1954-'55	.	N.A.	18.50	25.50	N.A.	..	42.50	22.75	20.00
1955-'56	.	62.00	18.25	24.00	41.00	..	43.50	22.00	20.50
1956-'57	.	63.00	19.00	25.00	42.00	..	44.00	23.00	21.00
AVERAGE	.	61.67	17.60	23.75	39.19	..	42.37	22.12	20.00
								30.25	32.12

## APPENDIX X

*Average monthly wholesale prices of green peas in Nasik  
(1953 to 1957)*

Year	Variety—Desi peas					(Rupees per maund or 37.324 kgs.)			
	July	August	September	October	Average				
1953	.	.	.	.	62.00	15.00	22.50	34.00	33.37
1954	.	.	.	.	N.A.	N.A.	23.00	38.00	30.50
1955	.	.	.	.	63.50	16.00	24.50	N.A.	34.67
1956	.	.	.	.	64.50	18.00	28.00	45.50	37.75
1957	.	.	.	.	66.00	23.00	31.00	44.50	41.12
AVERAGE	.	.	.	.	64.00	18.00	25.80	39.25	36.76

## APPENDIX XI

*List of important pea canning factories in India*

Sl. No.	Name	State
1	M/S Midland Fruit and Vegetable Products, Mat-hura.	Uttar Pradesh
2	M/S S. R. Cannery, Allahabad . . . . .	„
3	M/S G. G. Fruit Preserving factory, Haldwani . . . . .	„
4	M/S Aroura Fruit Industry, Lucknow . . . . .	„
5	M/S Oberoi Fruit Industries, Lucknow . . . . .	„
6	Govt. Fruit Preservation and Canning Institute Lucknow.	„
7	Food Processing Co-operative Society, Mahewa (Etawah).	„
8	Nagpur Orange Grower's Co-operative Association, Ltd., Processing Unit, Nagpur (formerly CHOCS).	Maharashtra
9	M/S James Smith & Co., Bombay . . . . .	„
10	M/S D. & P. Products, Bombay . . . . .	„
11	M/S Kipre (India) Private Ltd., Bombay . . . . .	„
12	M/S Pomona Canning Co., Bombay . . . . .	„
13	M/S Victoria Manufacturing Co., Delhi . . . . .	Delhi
14	M/S Veldon Chemicals and Food Products, New Delhi	„
15	M/S Ambrosia Food and Canning Industries, New Delhi	„
16	M/S Excelsior Food and Chemical Industries, New Delhi	„
17	M/S Northland Industries, Delhi . . . . .	„
18	M/S Tims Products Ltd., Calcutta . . . . .	West Bengal
19	M/S Farmer and Fruit Products Ltd., Calcutta . . . . .	„

Marketing Series No.	Symbol No.	Name of Publication	Price
1	2	3	4
Rs. A. P.			
*18	AMA 19	Abridged edition of the Report on the Marketing of Eggs in India and Burma (English) . . . . .	0 8 0
*19	AMA 7.30	Annual Report of the Agricultural Marketing Adviser and Summarised Reports of Senior Marketing Officers in Provinces and certain States for the year ending 31st December, 1939 . . . . .	1 10 0
*20	AMA 11	Report on the Marketing of Grapes in India and Burma . . . . .	1 4 0
*21	AMA 18	Report on the Marketing of Coffee in India and Burma . . . . .	1 4 0
*22	AMA 21	Report on the Marketing of Potatoes in India and Burma . . . . .	1 4 0
*23	AMA 22	Report on the Marketing of Milk in India and Burma . . . . .	1 4 0
*24	AMA 25	Preliminary Guide to Indian Fish, Fisheries methods of Fishing and Curing . . . . .	1 0 0
*25	AMA 27	Abridged edition of the Report on the Marketing of Eggs in India and Burma in <i>Urdu</i> . . . . .	0 8 0
*26	AMA 26	Abridged edition of the Report on the Marketing of Eggs in India and Burma in <i>Hindi</i> . . . . .	0 8 0
*27	AMA 20	Report on the Marketing of Rice in India and Burma . . . . .	1 4 0
*28	AMA 24	Report on the Marketing of Groundnuts in India and Burma . . . . .	1 4 0
*29	AMA 7.40	Annual Report of the Agricultural Marketing Adviser and Summarised Reports of Senior Marketing Officers in Provinces and certain States for the year ending 31st December, 1940 . . . . .	1 4 0
*30	AMA 28	Abridged edition of the Report on the Marketing of Potatoes in India and Burma in English . . . . .	1 4 0
*31	AMA 29	Abridged edition of the Report on the Marketing of Grapes in India and Burma in English . . . . .	1 4 0
*32	AMA 30	Abridged edition of the Report on the Marketing of Milk in India and Burma in English . . . . .	1 4 0
*33	AMA 39	Handbook on the quality of Indian Wool . . . . .	1 4 0
*34	AMA 38	Abridged edition of the Report on the Marketing of Tobacco in India and Burma in English . . . . .	1 4 0
*35	AMA 31	Abridged edition of the Report on the Marketing of Groundnuts in India and Burma in English . . . . .	1 4 0
*36	AMA 41	Report on the Marketing of Hides in India and Burma . . . . .	1 4 0

(Continued from the inside front title cover)

**LIST OF PRICED PUBLICATIONS—*Contd.***

1	2	3	4
			Rs. nP.
*37	AMA 35	Abridged edition of the Report on the Marketing of Rice in India and Burma in English	0.50
*38	AMA 34	Instructions regarding the Grading and Marketing of Ghee in connection with Agricultural Produce Grading and Marking (Ghee) Rules, 1938	0.25
*39	AMA 23	Report on the Marketing of Sugar in India and Burma.	1.25
*40	AMA 37	Report on the Marketing of Skins in India and Burma.	1.25
*41	AMA 22.2	Second edition of the Report on the Marketing of Milk in India and Burma	1.25
*42	AMA 36	Report on the Co-operative Marketing of Agricultural Produce in India	1.25
*43	AMA 42	Report on the Marketing of Citrus Fruits in India	1.25
*44	AMA 33	Report on the Marketing of Lac in India	1.25
*45	AMA 40	Reports on Fairs, Markets and Produce Exchanges in India	1.25
*46	AMA 32	Report on the Marketing of Coconut and Coconut Products in India	1.25
*47	AMA 45	Report on the Marketing of Cashewnuts in India	1.25
*48	AMA 43	Report on the Marketing of Gram in India	1.25
*49	AMA 47	Report on the Marketing of Bananas in India	1.25
*50	AMA 48	Report on the Marketing of Sheep and Goats in India	1.25
*51	AMA 44	Report on the Marketing of Barley in India	1.25
*52	AMA 46	Report on the Marketing of Fish in India	1.25
*53	AMA 51	Report on the Marketing of Cattle in India	1.25
*54	AMA 52	Report on the Marketing of Wool and Hair in India	1.25
*55	AMA 53	Report on the Marketing of Castor seed in India	1.25
*56	AMA 57	Agricultural Produce (Grading & Marking) Act, 1937 with Rules made prior to 31st December, 1946	1.25
*57	AMA 50	Report on the Marketing of Ghee and Other Milk Products in India	3.00
58	AMA 55	Supplement to the Report on the Marketing of Wheat in India	1.25
59	AMA 49	Report on the Marketing of Rapeseed and Mustard in India	2.00
60	AMA 56	Report on the Marketing of Cardamom in India	1.12
61	AMA 59	Bulletin on the Marketing of Sann Hemp in India	1.50
5...4	A.M.A./60		

LIST OF PRICED PUBLICATIONS—*Contd.*

1	2	3	4
			Rs. nP.
62	AMA 54	Bulletin on the Marketing of some Important Stone, Pome and Small Fruits and Pine-Apples in India . . . . .	1.25
63	AMA 58	Report on the Marketing of Areca-nuts in India . . . . .	1.25
64	AMA 60	Report on the Marketing of Milk in the Indian Union . . . . .	3.50
65	AMA 46-II	Report on the Marketing of Fish in the Indian Union . . . . .	5.62
66	AMA 25-II	Preliminary Guide to Indian Fish, Fisheries Methods of Fishing and Curing . . . . .	4.25
67	AMA 62	Abridged edition of the Report on the Marketing of Milk in Indian Union in Hindi . . . . .	1.12
68	AMA 61.48	Annual Report on the Directorate of Marketing and Inspection for the year ending 31st December, 1948 . . . . .	1.25
69	AMA 64	Atlas on Livestock and Livestock Products . . . . .	8.87
70	AMA 66	Instructions for Grading Tobacco . . . . .	1.12
71	AMA 69	Report on the Marketing of Hides in India . . . . .	4.50
72	AMA 68	Report on the Marketing of Sesamum and Niger-seed in India . . . . .	3.50
73	AMA 73	Report on the Marketing of Groundnuts in India . . . . .	7.50
74	AMA 70	Report on the Marketing of Maize and Millets in India . . . . .	5.50
75	AMA 74	Report on the Marketing of Rice in India . . . . .	8.00
76	AMA 75	Report on the Marketing of Tobacco in India . . . . .	7.50
78	AMA 77	Methods of Sampling & Testing Vegetable Oils and Fats under Agmark . . . . .	2.25
79	AMA 79	Report on the Marketing of Meat in India . . . . .	5.75
80	AMA 81	Report on the Marketing of Skins in India . . . . .	5.50
AMA 85		Quality of ghee sold loose in urban Markets in India Ghee Series I in Engl.sh . . . . .	0.25
AMA 88		Studies in Ghee Series II in English . . . . .	0.19
81	AMA 80	Methods of Sampling & Testing Butter Fat (Ghee) and Butter under Agmark . . . . .	2.37
82	AMA 82	Bulletin on the Marketing & Palmyra Fibres in India . . . . .	1.62
83	AMA 83	Report on the Marketing of Chillies in India . . . . .	7.75
84	AMA 86	Report on Marketing of Poultry in India . . . . .	3.50
85	AMA 87	Report on the Marketing of Potatoes in India . . . . .	3.00
87	AMA 90-54	Report on the Analysis of Fruits and Vegetable Products in India . . . . .	2.37

LIST OF PRICED PUBLICATIONS—*Contd.*

1	2	3	4
			Rs. n.P.
88	AMA 90	Report on the Marketing of Tapioca in India	1.62
89	AMA	Report on the Marketing of Linseed in India	10.50
91	AMA 94.1	Report on the Regulated Markets in India Vol. I— Legislation	2.25
92	AMA 84	Report on the Marketing of Cattle in India	3.37
93	AMA 99	Report of an <i>Ad Hoc</i> Survey of Cold Storage for Fruits and Vegetables in Consuming and centres in India	0.87
94	AMA 94	Administration Report of the Directorate of Marketing and Inspection for the period 1949 to 1954	2.00
95	AMA 95	Ghee Series I in Hindi	0.31
96	AMA 96	Ghee Series II in Hindi	0.25
96	AMA 100	Report on the Fruits and Vegetable Murrabba In- dustry in India	1.50
98	AMA 95-55	Administration Report of the Directorate of Marketing and Inspection for the year 1955	1.75
77	AMA 78	Report on the Marketing of Mangoes in India	10.00
85	AMA 104	Report on the Marketing of Ghee and other Milk products in India	2.25
102	AMA 101	Report on the Marketing of Lac in India (under print)	
102	AMA	Report on the Marketing of Pulses in India	6.50
103	AMA 105	Ata Grading Instructions	0.75
104	AMA	Instructions for Grading and Marking of Sugarcane (Jaggery) under the Agricultural Produce (Grading & Marketing) Act, 1937, and the Sugarcane Gur (Jaggery) (Grading & Marking) Rules, 1943	2.37
105	AMA 107	Instructions on Grading and Marking of Creamery Butter	2.50
106	AMA 112	Hand book on Grading of Sann Hemp in India	2.00
107	AMA 108	Hand book on Grading of Bristles in India	2.00
109	AMA	Agricultural Produce (Grading & Marking) Act 1937 (under print)	
110	AMA	Atlas on Marketing Aspects of Food Crops	10.00
111	AMA 110	Report on Chutney Industry in India	3.87
112	AMA 98	Atlas on Marketing Aspects of Commercial crops	10.00
113	AMA	A note for the guidance of parties wishing to grade ghee under Agmark in Hindi	(Unpriced)
114	AMA	Administration Report of the Directorate of Mar- keting & Inspection for the year 1953	

LIST OF PRICED PUBLICATIONS—*Concl.*

1	2	3	4
			Rs. nP.
115	AMA 113	Report on the Marketing of Bones and Bonemeals in India . . . . .	4.50
116	AMA 114	The Fruit Products Order 1955 . . . . .	
118	AMA 115	Instructions for Grading Lemongrass and Sandal-wood Oils . . . . .	2.37
<i>Brochure Series</i>			
	..	Brochure on the Marketing of Fish in India . . . . .	(Unpriced)
	..	Brochure on the Marketing of Wool in India . . . . .	Do.
	..	Brochure on the Marketing of Milk in the Indian Union . . . . .	Do.
	..	Brochure on the Marketing of Isubgol in India . . . . .	Do.
	AMA 63	Brochure on the Marketing of Kapok and Akund Floss in India . . . . .	1.50
	AMA 65	Brochure on the Marketing of Groundnuts in India . . . . .	1.50
	AMA 72	Brochure on the Marketing of Bristles in India . . . . .	3.75
	AMA 71	Brochure on the Marketing of Fish in India in Hindi . . . . .	1.62
	AMA 76	Brochure on the Grading of Tobacco in India . . . . .	2.37
86	AMA 89	Brochure on the Marketing of Henna in India in English . . . . .	0.87
99	AMA 103	Brochure on the Marketing of Henna in India in Hindi . . . . .	0.56
108	AMA 109	Brochure on the Marketing of Lemongrass Oil in India . . . . .	3.50
117	AMA 111	Brochure on the Standard Methods of Wool-Analysis . . . . .	

NOTE.—\*The Report is out of stock with the Manager of Publications, Civil Lines Delhi-8.

N.B.—Prices are inclusive of packing and postage in (India). Indentors requiring the above are requested to quote only the symbol and not the title of the publications.

Publications noted above except unpriced brochures can be had from (a) Manager of Publications, Civil Lines, Delhi-8, (b) Book Depot, 8, Hastings Street, Calcutta for local cash sale only, and (c) Any of the authorised agents for the sale of Government of India Publications.

The Unpriced brochures can be had from the Directorate of Marketing and Inspection, New Secretariat Building, Nagpur.

In Europe and America, Public Department (Publication Branch) Office of the High Commissioner of India, India House, Aldwych, London, W.C. 2.

PRINTED IN INDIA BY THE MANAGER GOVERNMENT OF INDIA PRESS  
NASIK ROAD AND PUBLISHED BY THE MANAGER OF PUBLICATIONS DELHI-8